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# THE GASTROINTESTINAL TRACT IN THE AGED

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The gradually expanding years of life have brought new problems to the medical field. Geriatrics has assumed a major importance in the practice of medicine. While many investigators have reported isolated studies on various manifestations in the gastrointestinal tract in persons over 60, most of these have concerned organic changes, and there are few complete studies of the patient as a whole in the literature up to this time.

It is academic to emphasize the tremendous responsibility that rests on the examining physician to rule out serious organic disease. On the other hand, when a patient who has enjoyed apparent good health begins having symptoms that not only are troublesome in themselves but cause him emotional concern, this responsibility cannot be overstressed.

The tremendous educational campaign for the detection of cancer cannot help affecting the mental reactions of the patient. He knows only too well that carcinoma occurs frequently in the gastrointestinal tract, and he is entitled to a thorough examination for this if for no other reason. He must be assured that carcinoma is not evident at the time of the completion of such an examination.

As years take their toll, as his earning capacity is definitely diminished, as his security becomes a factor, and, finally, as death takes many of his friends and family, is it any wonder that the patient notices symptoms and is distinctly disturbed? If there is any time at which the art of medicine assumes a major role, it is certainly in dealing with elderly persons.

For these reasons we have reviewed the last 133 ambulatory patients over 60 who have consulted us and who had no organic abnormality to account for their symptoms. We should like to review statistically our various clinical and laboratory observations and then discuss the philosophical and therapeutic approach to the problem as a whole.

## PRESENTING SYMPTOMS

The 133 patients consisted of 66 women and 67 men, ranging in ages from 60 to 83. It appears significant that 80 of them had symptoms referable to bowel habits. The other 53 had daily bowel movements. Of the 80 with bowel disturbances, 41 had persistent constipation; 10 had intermittent constipation; eight more had used repeated laxatives or enemas; four had constant diarrhea; 11 had intermittent diarrhea; and six had alternating diarrhea and constipation.

Constipation had been considered a common symptom of elderly persons. Mueller-Deham and Rabson [1] stated that one in every four old persons is habitually constipated, for the most part because the diet lacks bulky foods that ordinarily stimulate peristalsis. Sorter, Berg, and Necheles [2] reported that constipation is one of the frequent complaints after 60; all their patients showed a lack of tone and contractile power of the sigmoid flexure and rectum. Constipation has been attributed also to stasis in the distal part of the colon, to malfunction, and to redundancy.[3] Years ago, Hurst [4] stated that senile chronic constipation is due to atonic dilatation and deficient peristalsis of the colon secondary to atrophy of the muscles. Freeman,[5] reviewing the literature, found no studies on the total time of transmission of food through the gastrointestinal tract in the aged and suggested that, even though constipation presupposes slow motility, it is due largely to rectal atony. Ivy [3] quoted Humphry,[6] who found in a study of 900 persons who had attained the age of 80, including 74 centenarians, that 31% had constipation or took laxatives. However, Ivy found that 31% of 1,082 college students also were constipated. Stroup [7] concluded that a careful study is needed before one can conclude that aging predisposes to the development of true constipation. Ivy [3] and Niles and Martin [8] concluded that there is no evidence that constipation is commoner in aged than in young persons. Boas.[9] Rehfuss,[10] Valdez,[11] and Hurst [4] also discussed constipation in the aged.

The next most frequent complaint in our series of patients was distress in the upper part of the abdomen, consisting of heartburn, nausea, fulness, distention, and belching. Only 17 of these persons suffered from fatigue, although Bartley and Chute [12] and Bortz [13] reported that fatigue is a common complaint of old persons. Weakness

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The bibliographic references have been omitted from THE JOURNAL because of lack of space; however, they are included in the authors' reprints.

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occurred in 12 of our patients; only nine lost weight; six experienced nausea, four anorexia, and one vomiting. There were 12 who had undergone cholecystectomy, 27 appendectomy, two hemorrhoidectomy, and three gastroenterostomy.

### PHYSICAL EXAMINATION

Sixty-nine patients had normal blood pressure, and one had a systolic pressure below 100. In 43 the systolic pressure was elevated above 150, and 20 had both systolic and diastolic hypertension. Our findings confirmed the opinion of Boas [14] that, with respect to old persons, the term hypertension is used too loosely. He expressed the belief that a rise in systolic pressure without a diastolic rise is the common form encountered in old age, owing to loss of elasticity of the arteries and arteriosclerosis.

Eight patients had cardiac enlargement, and four had enlargement of the liver. In the entire series, only two had right inguinal hernia and one epigastric hernia. There was generalized abdominal tenderness in only 18 patients; localized tenderness was present in the left upper abdominal quadrant in two, in the right upper quadrant in 15, in the left lower quadrant in nine, in the right lower quadrant in eight, and in the epigastrium in 11. Two patients had rectal stricture, and four had external hemorrhoids. Obvious signs of avitaminosis (cheilosis, smoothness and redness of the tongue, peripheral neuritis, weight loss, and history of poor food intake) appeared in one patient. Thirty-five patients were subjected to proctoscopic examination: 30 were normal, two had external hemorrhoids, two had internal hemorrhoids, and one had both external and internal hemorrhoids.

TABLE 1.—*Relation of Basal Metabolic Rate to Age*

| Age | Number of Patients | | |
|---|---|---|---|
| | BMR +11% *to* +19% | BMR +10% *to* −10% | BMR −11% *to* −19% |
| 60 | 2 | 15 | 6 |
| 61 | 4 | 5 | 3 |
| 62 | 1 | 6 | 0 |
| 63 | 1 | 4 | 5 |
| 64 | 2 | 2 | 2 |
| 65 | 2 | 9 | 1 |
| 66 | 1 | 4 | 3 |
| 67 | 1 | 1 | 2 |
| 68 | 2 | 5 | 3 |
| 69 | 0 | 1 | 1 |
| 70 | 2 | 3 | 0 |
| 71 | 0 | 2 | 2 |
| 72 | 1 | 1 | 1 |
| 73 | 0 | 3 | 1 |
| 74 | 0 | 2 | 1 |
| 75 | 1 | 1 | 0 |
| 76 | 0 | 0 | 0 |
| 77 | 0 | 1 | 0 |
| 78 | 0 | 2 | 0 |
| 79 | 0 | 0 | 0 |
| 80 | 0 | 0 | 0 |
| 81 | 0 | 0 | 0 |
| 82 | 0 | 2 | 0 |
| 83 | 0 | 1 | 0 |

### LABORATORY STUDIES

*Hematologic Studies.*—There was no abnormal bleeding in any case. Two patients had polycythemia vera; eight had normochromic anemia, one had hypochromic anemia, and one had hyperchromic anemia (not true pernicious anemia). All other patients had blood cell counts within the limits of normal.

*Basal Metabolic Rate.*—It will be seen from table 1 that the basal metabolic rate stayed near normal as the age of the patients increased, with a few patients on either side. Other authors [15] have stated that there is usually a progressive drop in the metabolism with advancing age.

Table 2 shows the relation of bowel habits to basal metabolic rates. In spite of the frequent assertion [16] that constipation is associated with a lower than normal basal metabolic rate, 27 of our patients who were constipated had normal basal metabolism. Six had above normal rates, ranging from +11 to +19%. On the other hand, 15 patients had rates ranging from −11% to −19% (only one patient with a rate of −19%). Rakoff [17] stated that 75% of patients with hypothyroidism have constipation; Feldman [16a] and Brown [16d] suggested that this presumed constipation is due to hypomotility of the gastrointestinal tract with loss of tone, which results in sluggish movement. Furthermore, Means,[16b] Eggleston,[16c] and Brown [16d] found that thyroid is often an excellent laxative. The great majority of our patients with lowered metabolism showed normal motility on roentgen examination.

*Gastric Analysis.*—Among 113 patients for whom gastric analysis was done, 13 (9.8%) had histamine-free achlorhydria, which is about the same as the frequency of achlorhydria in the population as a whole. Forty-three had subacidity, with values below 30. On the other hand, 23 had free acid above 50, the highest value being 76. Of the 13 with achlorhydria, four had regular bowel movements, six constipation, two diarrhea, and one alternating diarrhea and constipation.

TABLE 2.—*Correlation of Bowel Habits and Basal Metabolic Rates*

| Basal Metabolic Rate | Number of Patients | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Regular Habits | | Diarrhea | | Constipation | | Alternating Diarrhea and Constipation | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| +11% to +19% | 7 | 7 | 0 | 0 | 3 | 3 | 0 | 1 |
| +10% to −10% | 9 | 18 | 3 | 7 | 9 | 18 | 2 | 2 |
| −11% to −19% | 11 | 4 | 2 | 0 | 9 | 6 | 0 | 0 |

It is generally agreed that achlorhydria increases after the age of 45. The incidence of histamine-free achlorhydria reported in the literature is as follows: Davies and James [18] studied 100 patients over 60 and found 15% with histamine-free achlorhydria; Kopelowitz [19] found 28% with histamine-free achlorhydria; and Polland [20] found that 30.6% of men over 60 and 23.0% of women had histamine-free achlorhydria.

In our series, 23.9% had what might be considered hyperchlorhydria, in contradistinction to the observations of Rafsky and Weingarten,[21] who reported 12.7% hyperchlorhydria in their group of elderly patients. It is generally agreed that achlorhydria alone will rarely cause iron deficiency anemia.[22] None of our achlorhydric patients had an abnormal hematologic picture.

*Intravenous Dextrose Tolerance Test.*—The intravenous dextrose tolerance test was done for 67 patients. After the usual 12-hour fast, we administered 0.3 gm. of 50% dextrose solution per kilogram of body weight, and blood samples were drawn 30, 60, 90, 120, and 180 minutes later. The sugar content was determined by the

Somogyi method (true blood sugar). Forty-two (62.7%) had what were considered normal results. There were 18 (26.9%) with the so-called hepatic curve, six (8.9%) with a curve resembling those of diabetes, and only one (1.5%) with the so-called flat curve. The illness in this last patient was characterized by psychogenic fatigue.

In only 12 of the 67 persons was the dextrose level at the end of three hours lower than the original fasting level. This observation is exceedingly interesting, in view of the fact that younger persons with a psychogenic disturbance of the gastrointestinal tract usually have a definitely lower blood sugar level at the end of three hours than at the original fasting determination.[23]

There are few references in the literature to the intravenous dextrose tolerance test among elderly persons. Many reports on the oral test have appeared, but the results are considered unreliable because of the changes in absorption of old persons.[24] Smith and Shock [24] tested 43 patients over 60 by the intravenous method and found decreased tolerance. Their results disagreed with those of Lozner, Winkler, Taylor, and Peters,[25] who found no correlation between the results of tolerance tests and sex or age between 50 and 74.

*Stool Examination.*—Of 133 patients who underwent stool examination, 104 showed no occult blood. Twenty-four had 1+, two had 2+, one had 3+, and two had 4+ reactions to the benzidine test. There were no positive results when the patients were on a meat-free diet.

*Urinalysis.*—Examinations of urine showed no abnormality.

*Blood Chemical Studies.*—Six patients had elevated sulfobromophthalein retention, ranging from 10% to 20%. Except for the observation of 6 mg. of uric acid per 100 cc. in one patient, there were no other abnormal results among patients for whom blood chemical studies were indicated.

*Electrocardiographic Studies.* — Electrocardiograms were made of nearly all patients, because we believe that every patient over 50 should have routine electrocardiographic study. Of these, 53 showed results within the limits of normal; 20 showed left ventricular preponderance, 15 left axis shift, 14 left heart strain, 10 low voltage, nine chronic coronary insufficiency, and six some form of block, two with right heart strain and one each with auricular fibrillation, premature systoles, and an old infarct of the anterior wall.

## ROENTGEN STUDIES

*Gallbladder Examination.*—Sixty-two patients had normal gallbladder function. In 10, visualization of the gallbladder was poor but no stones were present; six of these had elevated sulfobromophthalein retention. In 19 persons, stones were seen in an otherwise normally visualized gallbladder. In four, the gallbladder was thought to have possible stones. Three patients had diverticulum of the gallbladder; three others had double fundus. Thirty-two patients in whom visualization of the gallbladder was good had poor emptying, which was interpreted as possible dyskinesia.

Our results may be compared with Rosenthal's report of autopsies of 300 old persons.[26] Some abnormality of the gallbladder was present in 38% of those; the incidence was 65% for women in the seventh decade. Sixty-seven per cent of the latter group had had no symptoms referable to the gallbladder, and 15% had had only vague abdominal complaints.

*Examination of Esophagus.*—Two patients had esophageal diverticula; in the others the esophagus was normal. There were 10 (7.5%) with hiatus hernia—a finding which contrasts with that of Brick,[27] who reported that 76.6% of his patients between 50 and 80 had hiatus hernia.

*Gastric Examination.*—Forty-seven patients showed normal gastric mucosa after the barium meal; 60 had a coarse gastric mucosal pattern with hypertrophic folds; eight had smooth atrophic mucosa (three of these had histamine-free achlorhydria). In 20 patients the lower pole of the stomach was classified as ptotic. There was antral spasticity and antral gastritis in only five patients. Three had had previous gastroenterostomy.

There is some divergence of opinion as to the effect of gastric acidity on gastric emptying time. Several writers[28] have reported rapid emptying of the stomach in normal persons with achlorhydria. Davidson and Gulland [29] reported rapid emptying of the stomach of patients with pernicious anemia. However, Carlson [30] and Jolliffe, Tisdall, and Cannon [31] concluded that gastric emptying time is normal and digestion unimpaired with achlorhydria. Our patients with achlorhydria all had normal emptying time.

*Duodenal Study.*—The duodenal pattern of 13 patients was coarse, and duodenal diverticula were present in 10 patients. The cap was deformed in seven patients and spastic in three, but no active ulceration could be demonstrated by compression technic in these persons.

*Examination of Small Intestine.*—Seventy-nine (59%) of our patients showed a coarse pattern in the small intestine, and 42 (31.5%) showed a picture considered to be within the limits of normal. Two patients had jejunal diverticulum, and one had diverticulum of the ileum. One patient had questionable ileal polyp, one showed atony of the ileum, and three had spasticity of its lower portion. Pavement pattern was seen in one patient, and the patient with obvious avitaminosis presented a feathery flecked appearance of the small intestine.

Jungmann and Cosin [32] studied the pattern of the small intestine of 18 patients from 70 to 91 and found hypertonus, corresponding to a coarse pattern, in 11 (62%). Three patients had hypotonus, two with accompanying hypomotility. In 15 patients the barium was segmented and scattered. These findings agree with the nutritional deficiency pattern described by Golden.[33] Weber [34] in 1939 described decreased motility of the small intestine, "subdued" peristalsis, and segmentation accompanying deficiency states. On the other hand, Jungmann and Cosin could not demonstrate any clinical evidence of hypovitaminosis in patients of their group. They interpreted their results as dependent on a decrease in blood supply to the intestinal tract associated with arteriosclerosis, which led to anoxia of Meissner's and Auerbach's plexuses. However, one of us [35] previously reported that in young persons the coarse pattern is associated with emotional disturbances affecting the gastrointestinal tract.

The correlation of bowel habits and motility of the small intestine is seen in table 3. These observations suggest that the small intestine may not play an important role in constipation. Only four of our constipated patients had hypomotility, while seven had hypermotility and 48 had normal motility.

Table 3.—*Correlation of Bowel Habits and Motility of the Small Intestine*

| | Number of Patients | | |
|---|---|---|---|
| Bowel Habits | Hypermotility (Less Than 2 Hr.) | Normal Motility (2 to 5 Hr.) | Hypomotility (More Than 5 Hr.) |
| Regular functions | 9 | 37 | 7 |
| Diarrhea | 3 | 10 | 2 |
| Constipation | 7 | 48 | 4 |
| Alternating diarrhea and constipation | 1 | 4 | 1 |

Table 4 illustrates the relation of motility of the small intestine to gastric emptying time. It can be seen that the gastric and intestinal motility in elderly persons is about the same as that found in younger ones. This agrees with the various reports in the literature.[36]

*Study of Colon.*—The colon was normal in 51 patients, redundant in 11, and irritable and spastic in 34. Among patients with irritable and spastic colon, only nine had diverticula. Forty-six patients (34.6%) had diverticula, divided as follows:

| | |
|---|---|
| Scattered | 12 |
| Sigmoid flexure only | 19 |
| Sigmoid flexure and descending colon only | 5 |
| Descending colon only | 4 |
| Cecum only | 3 |
| Hepatic flexure only | 2 |
| Splenic flexure only | 1 |

Only 14 of the 46 patients with diverticula were constipated; 25 had regular bowel movements; five had diarrhea; and two had alternating diarrhea and constipation. The incidence of 34.6% for diverticulosis in our series much higher than that (7%) reported by Ivy.[3] In our s there were 26 men and 20 women with diverticula. [3] stated that diverticula are about 33% more freuent in women than in men, while Valdez[11] said that diverticulosis is commoner among men. No other significant roentgenologic abnormalities were seen in the patients who had a barium enema.

*Comment.*—The foregoing statistical evidence is presented for the prime purpose of showing the variability of laboratory and roentgen observations in a group of 133 elderly persons with presumably no organic gastrointestinal disease except incidental gallstones and diverticulosis. Because gastrointestinal symptoms often are related to extra-abdominal manifestations, one should thoroughly study the metabolic, cardiac, and respiratory systems as well as the gastrointestinal tract.

It can be readily seen from these observations that one cannot prognosticate what the laboratory or roentgenologic evidence may be from the symptoms of elderly patients. We think this is important. It is definitely different from the results to be expected among persons under 50, in whom there would be correlation between the clinical manifestations and the laboratory and roentgen evidence.

## PSYCHOLOGICAL ASPECTS

Many old persons have emotional disorders that were not present before age 60.[37] We asked a neuropsychiatrist to outline for us the psychological defenses he had observed among elderly patients, in order that we might see how they compared with observations in the group we studied. He reported[38] that two of the paths that the aging organism takes in defending itself against the aging process are regression and conservatism. The first path, regression, is represented by childish actions and bizarre symptoms. Regression may reflect early toilet training and the relative importance placed on bowel movement in childhood. Sometimes this early training is too far removed in time for the patient to realize its importance.

The gastroenterologic symptoms of regression are usually expressed in such manifestations in the upper part of the gastrointestinal tract as belching, nausea, vomiting, anorexia, and heartburn. These symptoms affected 59 (44.3%) of our patients. Diarrhea has also been considered to be a regressive phenomenon.

The second path of defense is conservatism—the conservation of energy. Old persons with this pattern cannot give up anything. They hoard objects; they hoard money. This hoarding is bound up with a desire for security. The elderly person wants a sense of being master of his own situation. His conservatism is usually expressed in constipation, which is said to be commoner among men than among women. This may be due to the fact that old men are faced with the threat of disintegration and cannot tolerate passivity and dependence as well as women. The old woman does not retire as the old man does; her later life consists of much the same activities that she had as a young woman. Fifty-nine (44.3%) of our patients were constipated. Twenty-nine of these were men and 30 women. Kantor,[39] however, stated that the most extreme constipation he had observed was among elderly depressed women.

## TREATMENT

*Psychotherapy.*—The patient's clinical picture should be carefully reviewed for him. He should be told that there is no evidence of organic disease. At the same time an effort should be made to evaluate his symptoms in relation to his life situations.

Table 4.—*Relation of Motility of Small Intestine to Gastric Emptying Time*

| | Number of Patients | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Hypermotility | | Normal Motility | | | | Hypomotility | |
| Gastric Emptying Time (Hours) | ½ Hr. | 1 Hr. | 2 Hr. | 3 Hr. | 4 Hr. | 5 Hr. | 6 Hr. | 7 or More Hr. |
| ½ | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 |
| 1 | 0 | 1 | 2 | 2 | 2 | 1 | 2 | 0 |
| 2 | 5 | 7 | 7 | 8 | 10 | 5 | 5 | 0 |
| 3 | 0 | 2 | 5 | 9 | 13 | 4 | 2 | 1 |
| 4 | 2 | 1 | 1 | 4 | 14 | 3 | 2 | 1 |
| 5 | 0 | 1 | 0 | 1 | 1 | 4 | 0 | 0 |
| 6 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |

The differences in psychological reactions between old and young persons are exceedingly curious and interesting. While many old persons had had difficult life situations, with trials and tribulations over many years, their personal reactions to them seemed to us to be on a different plane from those of younger persons. Most of the patients were not too distinctly disturbed, and for that reason the need for psychotherapy at that level by a psychiatrist was not always great. They seemed to derive much comfort and satisfaction from being able to talk out their troubles with their physician. What they wanted most of all seemed to be some assurance that there was nothing seriously wrong with them. They seemed to recognize that they were in a life period where anything could happen, but, above all, they wanted hope and the realization that nothing was going to happen immediately. For these reasons, we think that it is incumbent on the physician to handle elderly patients with great sympathy and care, since he can do much to help them out of their presumed troubles. With this thought in mind we developed a management that would not interfere too much with the patients' daily lives and make them feel that they were ill or that they had serious symptoms. On this basis we approached the problem from a highly philosophical point of view.

The physician should not be too disturbed if a patient's bowels move once or twice a day or do not move for two or three days. The patient should be taught to overcome bowel consciousness and be made to understand that he should not be overly impressed by what he terms "regularity." As we stated at the outset, if there is one area where the art of medicine is all-important, it is in the psychotherapeutic approach to older persons who are overly concerned about their symptoms.

*Dietary Treatment.*—After the patient has been told the clinical significance of his symptoms, he should then be told of his dietary management. The diet plays an important part in medical management. It should be directed toward normalizing the pathological function. The patient should be impressed with the importance of the diet in producing harmonious function in the gastrointestinal tract. For persons with distress in the upper part of the abdomen—heartburn, fulness, distention, and belching—the usual time-honored diets may be used. For those with a tendency toward diarrhea and frequent bowel movements, the following diet is suggested.

Foods Allowed

| | |
|---|---|
| Cereals | One serving daily: cream of wheat, farina,® cream of rice, strained oatmeal, strained pettijohns,® puffed rice or rice krispies® (no cereal containing bran or whole grain) |
| Cereal Substitutes | Rice, noodles, macaroni, spaghetti, or vermicelli, all to be prepared plain, without rich or highly seasoned sauces |
| Bread | Enriched white bread (toasted), melba toast, white crackers, zwieback, or rusk (no dark or whole wheat breads) |
| Potatoes | Mashed, baked or boiled, not fried (no skins) |
| Soups | Vegetable milk soups made with puréed vegetables, lean chicken or beef broths, not highly seasoned |
| Meat | Lean tender meat or poultry, i. e., beef, lamb, veal, liver, chicken or turkey, broiled, boiled or roasted, not fried (all visible fat should be removed; pork and pork products, gravies, and sauces should be avoided) |
| Fish | Lean fresh-water fish, i. e., perch, pike, trout, bass, or whitefish, broiled, boiled, poached, or baked, not fried |
| Cheese | Cottage, cream, mild American or Wisconsin brick |
| Eggs | One or two daily, soft boiled, poached, shirred, or scrambled over water, not fried |
| Vegetables | Cooked and thoroughly strained; tomato juice permissible |
| Fruits | All to be thoroughly strained as baby foods; strained orange juice daily, at the end of the breakfast period (no syrup of canned fruits) |
| Desserts | Simple puddings, i. e., tapioca, rice, blanc mange, gelatine, custard, simple sponge cake, vanilla wafers, and fruit as specified |
| Beverages | Boiled milk, acidophilus milk, sanka,® kaffee hag,® and tea, *with moderate amounts of cream.* |
| Butter | In moderation |
| Condiments | None except salt |

Foods to Avoid

Fried foods, pork and pork products, tinned or luncheon meats and tinned fish; raw or whole cooked fruits and vegetables; spices and condiments; whole grain cereals and breads; jelly, honey, syrup, sugar, candy, pastries, pie; coffee, alcoholic and carbonated beverages; nuts, oils, salad dressings; gravies and sauces

Tobacco may be used in moderation

Sample Menu

Breakfast
Strained orange juice
Cream of wheat
Poached egg
White toast
1 pat butter
Cocoa
No sugar

Luncheon
Tomato juice
Toasted American cheese sandwich
Baked cup custard
Tea
No sugar

Dinner
Chicken broth, rice
Broiled lamb chops
Baked potato, no skin
Creamed puréed spinach
Strained carrots
White toast
Butter
Strained applesauce
Tea
No sugar

Snacks
10 a. m.:
Boiled milk, 6 oz.
White crackers
3 p. m.:
Boiled milk, 6 oz.
White crackers
Bedtime
Boiled milk, 6 oz.
White crackers, cereal, or toast

Cellu® sugarless sweetener or saccharine should be used instead of sugar

If the patient is constipated, either from delayed motility of the small intestine, which as a rule is negligible, or from "left-sided" constipation due to inhibition of the sacropelvic parasympathetic nerves, the following diet is suggested:

Foods Allowed

| | |
|---|---|
| Cereals | Whole grain cereals, cracked wheat, oatmeal, pettijohns,® shredded wheat, and whole wheat cereal |
| Bread | Whole wheat, cracked wheat, rye and corn breads preferable |
| Potatoes | As desired; may be baked frequently and the skin eaten |
| Soups | As desired |
| Meat, fish or poultry | As desired, at least one serving daily |
| Eggs | One or two daily |
| Vegetables | Liberal amounts, at least two raw and two cooked *vegetables daily; leafy vegetables most desirable* |
| Fruit | As desired, preferably raw; two raw fruits daily, one a citrus fruit, i. e., orange or grapefruit; fruit should be eaten with skin when possible |
| Desserts | Gelatine desserts, custards, simple puddings, and the like; fruits preferable |
| Beverages | Milk, buttermilk, fruit juices, tea, and coffee |
| Butter | As desired |
| Condiments | None except salt |

Foods to Avoid

Highly seasoned foods, condiments, pepper, mustard, chili sauce

Sample Menu

Breakfast
Orange and grapefruit sections
Oatmeal
Scrambled egg
Whole wheat toast
Butter
Coffee

Luncheon
Cream of mushroom soup
Chicken sandwich on whole wheat toast
Combination salad with oil dressing
Honey dew melon
Milk, 6 oz.

Dinner
Tomato juice
Broiled lamb chops
New potatoes in jackets
Chopped spinach
Celery hearts
Carrot sticks
Radish roses
Corn muffins
Butter
Fresh fruit cup

Bedtime
Fresh fruit
Milk, 6 oz.

Water

Drink at least eight glasses of water daily, preferably with meals.

Eat slowly and chew food thoroughly.

*If necessary, take dark molasses ("grandma's old fashioned" or "br'er* rabbit"), three tablespoons daily, or lactose (milk sugar), three tablespoons daily. The molasses may be taken alone, one tablespoon after meals, or used in such foods as molasses cookies and gingerbread. The lactose may be taken alone after meals, or may be used in any way sugar is used, e. g., in a beverage or on cereal.

These diets supply between 2,000 and 2,400 calories. It has been recommended [40] that the caloric intake of elderly persons be the same as that of young adults. Of course, any obese patient should be placed on a reduction diet,[41] since obesity definitely raises the mortality rate in this age group.[31] The diets also provide between 96 and 110 gm. of protein. Since many old persons have protein deficiency [42] and many have negative nitrogen balance,[43] their diet must be high in protein, with 1 gm.[31] to 1.4 gm.[43] of protein per kilogram of body weight and added amounts in times of stress.[44] The fatigue, edema, anemia, and lowered resistance of many old persons may be based on hypoproteinemia.

These diets also contain between 80 and 90 gm. of fat. Old persons should have less fat in their diets than younger persons,[45] because of their lowered lipase level,[40a] poor absorption of fat,[46] and a possible relation between cholesterol intake and arteriosclerosis.[41a] Because of defective fat absorption, their utilization of vitamin D is lowered.[47]

These diets allow approximately 200 to 280 gm. of carbohydrate. For various reasons old persons eat too much carbohydrate (52% of the total daily caloric intake, according to a study by Rafsky and Newman [48]).

TABLE 5.—*Recommended Mineral and Vitamin Allowances for Older Persons**

| | Sedentary Man (154 Lb., 70 Kg.) | Sedentary Woman (123 Lb., 56 Kg.) |
|---|---|---|
| Calcium | 1.0 gm. | 1.0 gm. |
| Iron | 12 mg. | 12 mg. |
| Phosphorus | 1.5 gm. | 1.5 gm. |
| Iodine | 0.15-0.30 mg. | 0.15-0.30 mg. |
| Copper | 1-2 mg. | 1-2 mg. |
| Vitamin A | 5,000 I. U. | 5,000 I. U. |
| Thiamine | 1.2 mg. | 1.0 mg. |
| Riboflavin | 1.8 mg. | 1.5 mg. |
| Nicotinic acid | 12 mg. | 10 mg. |
| Ascorbic acid | 75 mg. | 70 mg. |
| Vitamin D | Small amount | Small amount |

* From Recommended Dietary Allowances, Revised 1948, National search Council, Reprint and Circular Series, no. 129, October, 1948.

Elderly patients should be encouraged to drink adequate amounts of fluids during the day and less at night, so that their sleeping hours will not be disturbed by the frequent need for urination. We have occasionally told patients who continue to be constipated, in spite of the management outline, that they may insert 8 oz. (about 235 cc.) of warm tap water as a retention enema, so that the dehydrated stool will take up the water. This will help them expel feces without too much trauma to the anal structures.

Rafsky and Newman [48] concluded that the food and vitamin intake of old persons is adequate and that their absorption and assimilation of food are normal. Since the real problem is utilization, they suggested that older persons may have "biochemical avitaminosis." Stieglitz [41a] and Horwitt and associates [49] expressed the opinion that the vitamin intake of old persons should be the same as that of young adults. However, other authors have expressed the belief that the need of old persons is greater. Some of the recommended mineral and vitamin allowances for old persons are presented in table 5.

Low levels of vitamin A in the blood have been observed in old persons,[48] and it has been suggested [31] that supplemental vitamin A will aid in clearing senile changes in the skin. Most authors have agreed that elderly persons need more thiamine than young ones,[50] especially since they eat large quantities of carbohydrates.[51] The disabilities of advancing years, especially senile mental deterioration [52] and premature senile changes,[53] may frequently be postponed by administering supplemental thiamine hydrochloride and other B vitamins.[54] Lowered nicotinic acid intake produces porphyrinuria in old persons.[55] Rafsky and Newman studied the vitamin C needs of old persons [56] and concluded that their need for ascorbic acid is greater than that of younger persons.

Old persons need fairly large amounts of calcium [57] to prevent demineralization of bones and osteoporosis. The diet must contain sufficient iron to prevent deficiency, which is seen frequently in old persons.[58] The diets recommended here contain large quantities of vitamins and minerals. When additions are needed, capsules containing the supplements are prescribed.

## MEDICAL MANAGEMENT

The medicinal or pharmacologic treatment should be directed at normalizing pathological function. Overstimulation of the autonomic nervous system must be brought under control with simple drugs of specific application either to the parasympathetic or to the sympathetic nervous system. The symptoms referable to the upper part of the abdomen may be handled in the time-honored fashion with soothing preparations plus parasympatholytic and parasympathomimetic drugs. For hypermotility of the small intestine such parasympatholytic drugs as atropine, homatropine methylbromide, or methantheline (banthine®) bromide may be used. Treatment with these drugs prevents overstimulation by the parasympathetic nerves and allows some normalization of physiological balance. Side-reactions from atropine and methantheline may be troublesome, but the patient will eventually get used to them. Atropine is contraindicated when a patient has a tendency to glaucoma. If one is concerned about the possibility of glaucoma, homatropine methylbromide (novatropine® or novatrine®), 1/49 grain to 1/24 (1.3 to 2.5 mg.) four times a day, may be substituted.

We have previously alluded to the term "left-sided" constipation and stated that it was due to inhibition of the sacropelvic nerves subserving the rectum, sigmoid flexure, and descending colon. Since many constipated patients do have an inhibition of the parasympathetic nervous system at this level, it is important to stimulate the motility of the left half of the colon. Many physicians have approached this problem in the past from the standpoint of producing great bulk. However, it seems logical that, if the muscles could be efficiently stimulated pharmacologically, evacuation of the bowel would be more regular.

Because the evacuation reflex is carried over the sacropelvic parasympathetic nerves, we administered neostigmine to a large number of patients. This drug abolishes the cholinesterase influences on acetylcholine and allows the latter to act unimpeded in stimulating muscle contraction, thus overcoming constipation. It also allows increased stimulation of the glandular structures in the mucous membrane. We have observed no untoward reactions to this drug when given to ambulatory patients in doses of 15 mg. three times a day, as a rule before meals. The dose may be varied, depending on the frequency of bowel movements. We have used neostigmine and atropine for the same patient when he has hypermotility of the small intestine with hypomotility of the left half of the colon. Apparently the two drugs act at different levels in the nervous system. In our experience, bethanechol (urecholine®) chloride often produces more side-reaction than the other preparations, and we have been reluctant to use it for old persons for this reason.

A tendency to hard, firm stools may be overcome by producing the normal laxative for the digestive tract, namely, bile. This is accomplished by inducing choleresis with dehydrocholic acid (decholin® or ketochol®), in 3 to 5 grain (20 to 30 gm.) doses at mealtime. Our experience leads us to believe that dehydrocholic acid is far better than bile salts, which serve as cholagogs. We absolutely prohibit the use of such drastic cathartics as mild mercurous chloride (calomel), jalap, rhubarb, sodium phosphate, magnesium sulfate (epsom salt), and magnesium citrate. We feel that harsh cholagogs and harsh cathartics lead only to more irritation of the mucous membrane, causing so-called cathartic colitis.[59]

Many elderly persons are apprehensive, disturbed, and perhaps unduly concerned about their symptoms. We have found that small doses of phenobarbital sodium, three times a day and at bedtime, improve the balance of the nervous system. Occasionally free-floating anxiety may be aggravated by the use of barbiturates. When this occurs, chloral hydrate may be used in suitable doses. Apparently the normalization of the emotional household prevents overstimulation of the gastrointestinal tract and allows a restoration of normal physiological balance.

### SUMMARY

Clinical and laboratory studies of 133 patients between the ages of 60 and 83 without noteworthy organic disturbances of the gastrointestinal tract are reported. Discrepancies between our observations and those found in the literature in isolated studies of particular symptomatic and laboratory findings are discussed. Our inability to postulate the probable laboratory and roentgen picture on the basis of symptoms, in contrast with the laboratory and roentgen results and the symptoms of younger persons, is pointed out. Some psychological reasons for symptoms in the upper and lower parts of the abdomen are outlined. Treatment, including psychotherapeutic, dietary, and medicinal considerations in old persons, is described.

104 S. Michigan Ave. (3).

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# DURATION OF PREGNANCY AND POSTMATURITY

*H. L. Stewart Jr., M.D., Detroit*

The duration of pregnancy is actually the time from fertilization of the ovum until the onset of labor. The average length of this period varies in different species. The period of human gestation is most frequently assumed to be nine calendar months, or 280 days, from the last menstrual period. By this method of estimation, gestation has been reported to continue as long as 11 or 12 months. The accuracy of this method may well be questioned. Estimation of the time from a single coitus to the onset of labor offers a different perspective. Medicolegal procedures have frequently relied on this method of computation. The reliability of this method depends on the accuracy of the information given. Data from this source are limited. In 1869, Ahlfeld reported one of the largest studies of the duration of pregnancy as calculated from isolated coitus.[1] The length of pregnancy ranged from 231 to 329 days among 297 pregnant women who knew the date of a single intercourse but not the last menstruation. There were 128 women who knew the dates of coitus and menstruation, with the limits of pregnancy from 243 to 295 days. Apparently, accurate records reduce the incidence of error.

Basal temperatures have been accepted as an indicator of the approximate time of ovulation and of the onset of pregnancy. If the temperature records are kept during the month in which a woman conceives, reliable evidence is furnished to establish the onset of pregnancy. The duration of pregnancy determined by this method is presented from the records of 135 women and compared with 3,500 whose last menstrual period and the onset of labor were recorded. These observations suggest that the definition of the term "postmaturity" should be revised.

### PRESENT STUDY

Over a five year period, records of oral basal temperatures were collected from 135 women, during the month that conception occurred. Instructions to the patient in the technique of recording basal temperatures were described in detail in a previous study.[2] The approximate date of ovulation was determined from the basal temperature chart. The duration of pregnancy was estimated from ovulation to the spontaneous onset of labor. Basal temperatures, in most instances, were recorded only during the first trimester of pregnancy.

It is generally accepted that postmaturity begins when 15 or more days have elapsed beyond the estimated date of confinement. This criterion was used in the review of 3,500 obstetric histories, in order to ascertain the relation of postmaturity to age and parity of the mother, weight, sex and length of the babies, and the incidence of repetition among those with more than one pregnancy. The findings in these cases served for purposes of comparison with the 135 women who recorded basal temperatures during the first trimester of pregnancy.

### RESULTS

The duration of pregnancy, from ovulation to the spontaneous onset of labor and delivery of a normal, full-term, living baby, ranged from 250 to 285 days among

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From the Department of Gynecology and Obstetrics, Henry Ford Hospital.

Read before the Section on Obstetrics and Gynecology at the One-Hundredth Annual Session of the American Medical Association, Atlantic City, June 14, 1951.

[1] Ahlfeld, F.: Beobachtungen über die Dauer der Schwangerschaft, Monatschr. Geburtsk. 34: 180, 1869.

[2] Stewart, H. L., Jr.: Oral Basal T [illegible] gnosis o[illegible] Pregnancy, West. J. Surg. 57: 192, 1949.

the women who recorded their basal temperatures during the first trimester of pregnancy. The average duration of pregnancy was 266 to 270 days. The limits of variation from the average duration of human gestation were 6.7%.

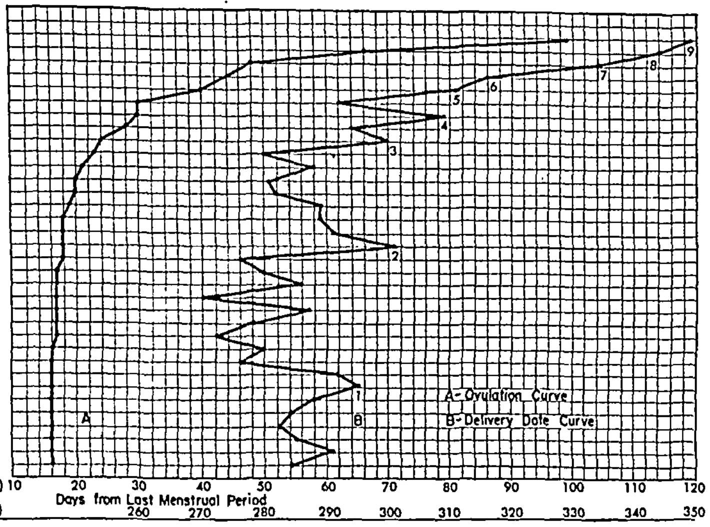

Chart 1.—Comparison of date of ovulation with date of delivery. Numbers 1-9 on curve B correspond to cases discussed in text.

Chart 1 shows the curves of the days of ovulation and the dates of labor in relation to the first day of the last menstrual period. The ovulation curve includes only cases in which ovulation occurred 16 or more days after the last menstrual period. As the curve of ovulation advances, so does the date of labor, with due allowance for the individual variability in the length of pregnancy. Even though eight pregnancies continued 10 months (300 days) or longer, from the first day of the last menstruation, in no instance did any pregnancy exceed 285 days from the day of ovulation. Pregnancies extending 295 days from the last menstrual period or longer, as shown in chart 1, are worthy of brief analysis.

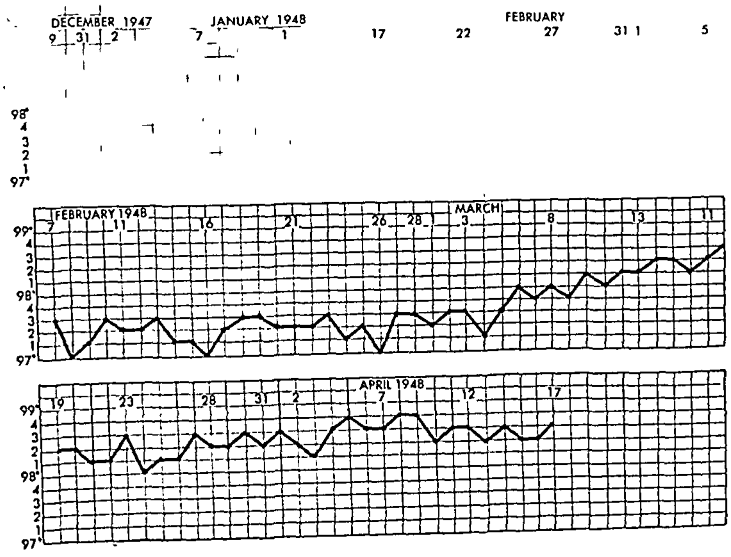

Chart 2.—Record of basal temperatures of a woman who became pregnant on the 66th day (March 4, 1948) after her last menstrual period. X's refer to the menstrual period, which occurred from Dec. 29, 1947, to Jan. 2, 1948.

## REPORT OF CASES

Case 1.—Delivery was on the 295th day from the last menstrual flow, but the gestation was only 279 days in length, since ovulation occurred on the 16th day of the cycle.

Case 2.—Ovulation occurred on the 18th day of the menstrual cycle. The alleged postmaturity extended to 301 days, but the duration of pregnancy was only 283 days, which is within the limits of normal variation.

Case 3.—Ovulation was delayed until the 24th day, with delivery on the 300th day. The duration of pregnancy totals 276 days. Comparison with case 2 and other patients ovulating at approximately the same time emphasizes that the onset of labor lacks uniformity.

Cases 4, 5, 6, and 7.—Basal temperatures of these patients illustrate how delayed ovulation explains apparent delay of labor and alleged postmaturity. The parallel trend of ovulation and delivery curves is striking.

Case 8.—A primigravida, aged 21, menstruated on two occasions during the month preceding the last normal menstruation. Delivery of a female baby, weighing 3,930 gm. occurred 344 days later. Basal temperatures showed ovulation on the 66th day, and the duration of pregnancy from that date was 278 days (chart 2). Life was believed present at the 18th week from menstruation and, as so often found in many cases of this study, is an unreliable symptom on which to base any calculations.

Case 9.—A primigravida, aged 25, last menstruated on Dec. 29, 1947. Because of an infertility problem, she had been recording basal temperatures, which showed that ovulation did not occur until the fifth day of April (chart 3). Although the date of confinement by Naegele's rule was Oct. 5, 1948, a male baby, weighing 4,350 gm. was born on Dec. 13, 1948. The pregnancy totaled 349 days in relation to the last menstrual period. From ovulation it was 250 days. This mother believed delivery would be early in October and hoped that it would be a little ahead of time. At first it was difficult for her to understand the delay. Explanation of the basal charts allayed her anxiety concerning postmaturity and precluded any attempts at premature induction of labor when the pregnancy continued beyond the expected October confinement.

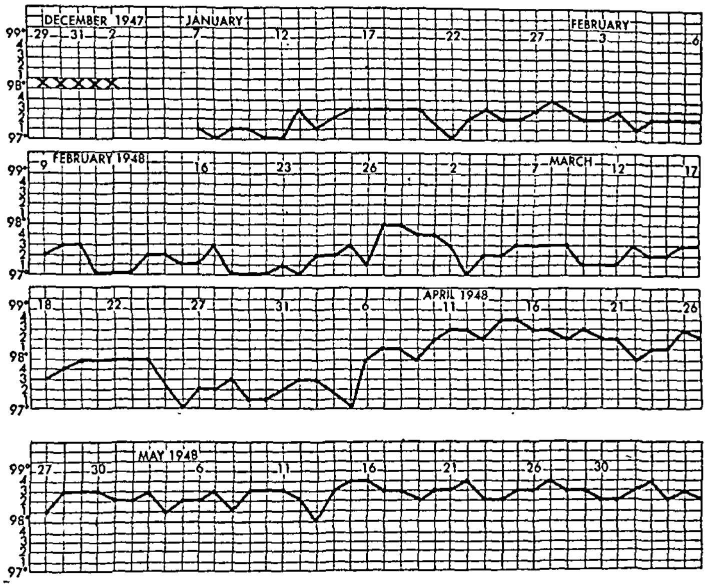

Chart 3.—Record of basal temperatures of a woman in whom ovulation occurred 98 days after last menstrual period, which occurred from Dec. 29, 1947, to Jan. 2, 1948.

Women who ovulated on the same day showed as much as 26 days difference in the time of onset of labor. An example is a patient who delivered a male baby weighing 3,900 gm. after 253 days, while the female baby of another mother weighed 3,740 gm. at delivery on the 279th day. Superficial clinical analysis in such instances often suggests that the former delivered at term, and, therefore, the latter delivered a 10 months' baby, since her pregnancy continued for an additional 27 days. A postovulatory time interval of 279 days is within the maximum length of human gestation as computed from basal temperatures.

Points meriting emphasis from the study of chart 1 are: 1. The maximum length of pregnancy as determined from the first day of the last menstrual period was quite variable. This type of estimation is necessarily inaccurate, because the last menstrual period is not the beginning of pregnancy. 2. The maximum limit of human pregnancy from ovulation to spontaneous onset of labor and delivery of a full-term, living baby would be 285 days, according to these data. The mean is 266 to 270 days. Until the cause of the onset of labor is better understood, it cannot be stated that the patient who delivers at the end of 285 days is necessarily postmature. Such a duration is within the limits of normal variation of human gestation. The beginning of a full-term labor in this study is not fixed but occurs during a period extending 250 to 285 days from ovulation. Postmaturity among the 135 pregnancies in this study did not exceed three weeks. 3. There is no evidence to support the alleged prolongation of human pregnancy to 10, 11, or 12 months. Delay in ovulation accounted for such instances in this study.

This study offers support and explanation of the opinion that postmature babies are not necessarily large. Some babies mature earlier than others. Mothers delivering at 280 days had small or large babies just as those delivering at 251 or 270 days. It has been stated that the size of the baby does not greatly increase during the time that alleged postmaturity exists.[3] This study shows that postmaturity, if it exists, is relatively short and does not extend beyond three weeks. It also shows that postmaturity did not affect the sex incidence of these babies.

The following significant facts were formulated from a study of 3,500 obstetric histories in comparison with 135 women of the basal temperature series. 1. As a criterion of postmaturity, 15 days or longer beyond the due date was used. Among 3,500 women, the incidence of postmaturity was 7.3%, or 1 in every 14 cases. Among the women in the temperature series, the incidence was 6.6% when the duration of their pregnancies was calculated from the last menstrual period. The percentage of expectancy of postmaturity is similar in the control group of 3,500 women and the experimental basal temperature series. 2. Women with two full-term pregnancies, delivering before their expected date in their first pregnancy, showed an 85% chance of again delivering early. If they went beyond their due date one or more days, the chances were slightly better than 50% that delivery would again be overdue. The interpretation is that variation in the duration of pregnancy is greater among different persons than successive pregnancies of the same persons. 3. Some patients were overdue four to six weeks in one pregnancy but in other pregnancies delivered only a few days late. This suggests some error in calculation, or late ovulation, for persons tend to approach consistency in their duration of gestations.

## COMMENT

When a patient passes the estimated date of confinement, the uncertainty of postmaturity immediately enters the clinical picture. The expectant mother becomes anxious about the size and health of her baby. Family and friends become concerned. The conscientious obstetrician faces additional decisions. He wonders whether the reported date of the last menstruation is accurate. Clinical and x-ray examinations may err in the prediction of the size and maturity of the baby in utero. Should labor be induced merely on the basis of probable postmaturity, especially if the cervix is not dilated? If the cervix is effaced and partially dilated, the patient will probably soon go into labor, and spontaneous labor is preferable to induction, which may be unwarranted intervention and may result in the birth of a small baby. If the patient delivered a large baby or an alleged postmature baby that died in utero would it have been better to induce labor? Since we do not know how long postmaturity exists, analysis of these questions offers no good pattern for action. Oral basal temperatures offer a rational way of determining the length of pregnancy and suggest that the concept of postmaturity should be revised.

Oral basal temperatures in women with a normal menstrual cycle show a biphasic curve characterized by a low preovulatory (estrogen) phase followed by relative hyperthermia during the postovulatory (progesterone) phase. In the event of pregnancy, there is a continuation of the postovulatory temperature elevation during the first trimester, and application of this fact has been useful in the clinical diagnosis of pregnancy. Basal temperatures are more accurate than the Aschheim-Zondek or Friedman tests during the first 10 days of pregnancy.[2] There is a gradual fall in the temperature curve at the end of the third month, until the preovulatory level (estrogen) is reached by the fourth month, where it continues until the onset of labor. An understanding of the normal curve during early pregnancy is essential for correct application and interpretation in this study.

A daily written record of events and temperatures as they transpire is invaluable. There is no need to depend on memory for bygone dates and events. A fallacious memory, unintentional or otherwise, is highly unscientific. In the event of bleeding during pregnancy, the temperature charts furnish important data in the differential diagnosis. Bleeding may be due to threatened abortion or to menstruation. The fallacy of dating the onset of pregnancy from uterine bleeding is apparent. The temperature continues to be elevated in threatened abortion, so that, if a temperature record is kept, the time the pregnancy began is definite and it is certain that it is continuing. When menstruation or spontaneous abortion occurs, there is a return of the temperature to the lower estrogen level with resumption of the menstrual cycle.[4]

The accuracy of estimating the onset of pregnancy from the date of ovulation is limited by the fact that only the approximate date of ovulation can be determined from basal charts. At most, this introduces an error of one or two days, which is negligible compared with the variation in the date of onset of labor. For purposes of consistency, the ovulation date was taken as the relative depression of temperature just prior to the sustained rise of the postovulatory phase. The human egg must be fertilized within a few hours following ovulation. Farris reported on 14 artificially inseminated women requiring hysterectomy and at operation found that human spermatozoa can live longer than 43 hours in the upper genital tract. But the presence of motility is not evidence of fertility. Spermatozoa lose their fertilizing power in 12 to 24 hours, for conception fails when ovulation occurs 24 hours after insemination.[5]

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[3] *Calkins, L. A.: Postmaturity, Am. J. Obst. & G.* [illegible] ., 1948.

[4] Stewart, H. L., Jr.: Oral [illegible] tion and Ectopic Pregnancy, Am. J. Obst. & [illegible]

Transcending the species barrier is interesting for purposes of speculation and comparison but should not be used as a basis for conclusions in humans. Notable errors have been made in the field of endocrinology in disregard of this basic fact. Listed in the table are the durations of pregnancy in animals dated from a single coitus.

Reid reported 40 cases of duration of pregnancy in the humans as calculated from a single coitus and found a mean of 277, with extremes of 260 to 294 days. This represents a variation of 6%. He concluded that the variation of duration of pregnancy in humans is one-half that of cows and mares. My finding of 6.7% variation supports the opinion of Reid.[6]

### MEDICOLEGAL ASPECTS

The maximum duration of pregnancy is stated in the laws of several foreign countries. Scotland, France, and Italy define 300 days as the maximum time for legitimacy in contested paternity. In Austria, the law recognizes the legitimacy of a child born in 307 days, and in German law the duration is 302 days after the death of the husband. Article 252 of the Swiss civil code states: "1. The child born during the marriage, or in the 300 days after the dissolution of the marriage has the husband for a father. 2. The child born after 300 days is not presumed legitimate." These laws do not refer to the date of the last menstruation, but are based on the date of the last possible coitus. The time element generously favors the defendant when compared with the results of my study.

*Duration of Pregnancy in Animals*

| | Limits, Days | Mean, Days | Variation from Mean, % |
|---|---|---|---|
| Rabbits | 27 to 35 | 31 | 12 |
| Cows | 252 to 320 | 286 | 12 |
| Mares | 311 to 394 | 352 | 12 |
| Sheep | 138 to 164 | 151 | 8.6 |
| Rhesus monkeys | 146 to 180 | 166 | 10 |

Legal opinions in affiliation proceedings in England nd the United States have been decided on the merits f the individual case, and the lack of exact knowledge as to the duration of human gestation has placed the defendant at the mercy of the medicolegal testimony. The fundamental question to be decided is whether an act of sexual intercourse with the defendant was the beginning of pregnancy. If it can be shown that the pregnancy commenced at a time subsequent to the act of intercourse, then the defendant is not the father of the child. By what logic can this be established when the maximum duration of gestation is unknown? Proof of the date of the last intercourse fails to clarify the situation. Even though my study shows that evidence as to the date of the last menstruation is inaccurate in determining the duration of pregnancy, owing to lack of more exact data, medical witnesses have been repeatedly forced to refer to cases of alleged postmaturity in which the last menstruation was assumed as the starting point of pregnancy. The vital importance of ascertaining the maximum duration of pregnancy in affiliation cases is at once apparent. Guilt or innocence of the defendant may depend on the actual duration of pregnancy. Affiliation cases before a court of law are influenced by certain legal presumptions depending on whether the child is born in wedlock or out of wedlock.

The courts in the United States judicially recognize the period of human gestation as 9 calendar months, 10 lunar months, or 280 days from the first day of the last menstrual period. The courts are cognizant of numerous authoritative medical articles recording exceptions to this rule even though litigation was not involved and the husband did not dispute the paternity of the child. Therefore, when the child is born in wedlock and disputed paternity arises, "there is strong legal presumption of legitimacy favoring the mother, even if it means straining the natural laws of the duration of pregnancy."[7] Owing to this assumption on the part of the courts, there apparently is no limit to the flexibility of this interpretation. This will necessarily continue until medical research establishes the maximum limit of human pregnancy.

Review of the numerous legal decisions implicating the duration of pregnancy show a wide latitude of opinions. Four cases are of special interest owing to the unusual length of gestation. All were attempts by the plaintiff (husband) to establish adultery on the part of the defendant (wife), solely on the basis of an abnormal length of gestation.

1. Gaskill vs. Gaskill (English Probate Division, 21 A. L. R., 1451, 1921). The petitioning husband last saw his wife on Oct. 4, 1918, when coitus took place. He sailed from England on Oct. 12, 1918, and did not return until Sept., 1919. When his wife gave birth to a child Sept. 1, 1919, there was an interval of 331 days from coitus to birth. The plaintiff offered no proof of misconduct on the part of the wife but based his claim on the impossibility of gestation extending to 331 days. Three leading medical authorities testified that such an interval could be possible. The Lord Chancellor of England found no evidence of adultery; therefore, the petition of the father was dismissed owing to failure of expert witnesses to disprove a pregnancy of 331 days.

2. Lockwood vs. Lockwood (Supreme Court, Special Term, Queens County, 62 N. Y. S., 910, May 2, 1946). The plaintiff, an officer in the Merchant Marine, left Norfolk. Va., for the Pacific on April 24, 1944. He did not return until Jan. 4, 1945, and the defendant's child was delivered April 14, 1945. The husband adduced no evidence of misconduct by his wife but merely petitioned the court for divorce solely on the hypothesis that it is impossible that so long a period, 355 days, could intervene between coition and parturition. Again medical witnesses testified that in the light of present day medical knowledge it could not be stated that a duration of pregnancy of 355 days was impossible. The court accordingly rendered judgment in favor of the defendant and dismissed the complaint.

3. Wood vs. Wood (Divisional Court, England, 1947). The parties were married in March, 1945, with the last date of coitus on Aug. 8 of the same year. A full-term, living baby was born on July 20, 1946. Evidence of infidelity was an inference to be drawn from the abnormal length of gestation of 346 days. The court held that adultery is a serious allegation, and it requires proper proof. Lord Merriman in the Divisional Court stated: "I absolutely decline on the information before us in this case, to say that we are judicially bound to hold that the period of 346 days is on the wrong side of any line that can possibly be drawn, that we are judicially bound to hold that the wife committed adultery, and that the magistrates were wrong in rejecting that contention."

4. Preston-Jones vs. Preston-Jones (House of Lords, England, December, 1949). Litigation involved the paternity of the second child born to the defendant mother on Aug. 13, 1946. The husband was absent from the United Kingdom from Aug. 29, 1945, until Feb. 13, 1946, and petitioned divorce on the grounds

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[5] Farris, E. J.: Human Fertility and Problems of the Male, New York, The Author's Press, 1950, p. 144.

[6] Reid, quoted by Simpson, J. Y.: Obstetric Memoirs and Contributions, Philadelphia, J. B. Lippincott Company, 1855, vol. 1.

[7] Schatkin, S. B.: Disputed Paternity Proceedings, Ed. 2, Albany, N. Y., Banks & Company, 1947, chap. 9, p. 228.

of adultery, since the date of last intercourse with the defendant would extend the total length of gestation to 360 days. The divorce commissioner dismissed the husband's petition, and the Court of Appeals directed two rehearings, before judgment was rendered in favor of the husband, granting a divorce. The decision was not unanimous, for there was one dissenting judge in the final verdict by the House of Lords. Lord Simonds in his final summary stated: "It is to me repugnant that a court of justice should be so little in accord with the common notions of mankind that it should require evidence to displace fantastic suggestions."

When a child is born out of wedlock and the alleged father denies paternity, exceptions to the average duration of pregnancy are subject to question. Statements relative to menstrual irregularities are not accepted by the court, for it is suspected that the mother may purposely attempt deception. The court assumes that "unless it can be satisfactorily explained by competent expert medical testimony, a substantial variation from the normal duration of pregnancy in an affiliation proceeding is an element of suspicion. By denying paternity, the defendant inferentially claims another man is the father of the child. If the court is not satisfied by evidence, principally due to the abnormal pregnancy which it was attempted to explain away, and denies an order of filiation, the result has reached this logic: paternity of another man may be consistent with a more reasonable view of the pregnancy in question."[7]

My study of basal temperatures has suggested the maximum duration of human pregnancy to be 285 days from ovulation to spontaneous full-term labor. This maximum limitation of human pregnancy merits critical analysis by other scientific methods for the detection of ovulation. Only in this way will it be determined if there are pregnancies extending beyond 285 days.

It would be assumed from this study that the maximum duration of pregnancy from a single intercourse is 285 days. A recognized maximum limit of pregnancy from the last coitus would greatly simplify the medicolegal barriers in affiliation proceedings. Decisions establishing paternity within a period of 300 days from the last coitus are reasonable, but longer periods seem most questionable and are conspicuous by the complete absence of any supporting data from this study.

## CONCLUSIONS

1. Oral basal temperatures collected over a period of five years included the records of 135 women during the month that conception occurred. The approximate date of ovulation was determined from the basal temperatures.

2. The average duration of human pregnancy from ovulation to spontaneous onset of labor and delivery of a normal, full-term, living baby was 266 to 270 days. The maximum was 285 days.

3. The maximum length of pregnancy as computed from the last menstrual period varies widely, for the time relation between menstruation and ovulation is not constant.

4. There is no evidence to support the alleged prolongation of human pregnancy to 10, 11, or 12 months. Pregnancies in the basal temperature series did not exceed 285 days, even though the estimated duration from menstruation was as long as 349 days. Abnormally long gestations, as judged from the last menstrual period, were due in all instances to delayed ovulation.

5. The prevalent concept of postmaturity should be revised.

*2799 West Grand Blvd.*

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# PRISCOLINE® IN ACUTE POLIOMYELITIS

## CLINICAL OBSERVATION OF SEVENTY-ONE PATIENTS

*A. C. LaBoccetta, M.D.*
*and*
*K. E. Dawson, M.D., Philadelphia*

Muscle pain occurs in the majority of, if not all, cases of acute anterior poliomyelitis. Pain may occur spontaneously, or it may be elicited by pressure or stretching of the muscle. Shortened muscles, purported to be in spasm, are usually the most painful. The duration of muscle pain in the usual patient with acute anterior poliomyelitis is between two and six weeks, although it may be as long as six to nine months. The mechanism of the pain is not definitely known, and the relationship between muscle pain or spasm and the accompanying or ensuing paralysis has not been established. It is generally accepted that prolonged muscle spasm, particularly when associated with muscle shortening, may be harmful by deterring recovery or causing permanent changes in the affected muscles. Muscle pain and spasm frequently occur simultaneously, but it has not been conclusively demonstrated which precedes the other. The observations of Smith and associates[1] indicate that in some patients pain and spasm are the result of ischemia from angiospasm, which can be relieved by increasing the blood supply to the muscle with external heat or vasodilator drugs. Intravenously administered procaine has successfully relieved muscle pain in acute anterior poliomyelitis,[2] but nicotinic acid has failed to do so.[1]

Priscoline® (2-benzyl-2-imidazoline hydrochloride), a sympatholytic drug, has been used by Smith and associates[3] in 73 patients with poliomyelitis with relief of pain in all. In another study,[4] in which 120 patients with poliomyelitis received priscoline,® relief of pain, a sense of well-being, disappearance of muscle twitching, and improvement in skin circulation were obtained. Nausea and vomiting were the only untoward reactions re-

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From the Philadelphia Hospital for Contagious Diseases.

Priscoline® was supplied by Ciba Pharmaceutical Products, Summit, N. J.

Drs. Burton Chance Jr. and Thales Smith and Mrs. Grace Noble assisted in this study.

ported.[4] In a more recent study, Smith and associates [5] obtained beneficial results in 663 patients with acute poliomyelitis.

This paper is a report of our observations in 71 patients with acute anterior poliomyelitis treated with priscoline® in the Philadelphia Hospital for Contagious Diseases in 1950. The patients, who were selected because of their marked symptoms of pain and muscle spasm, included four with nonparalytic, one with bulbar-spinal-encephalitic, one with spinal-encephalitic disease, and 65 with spinal involvement. Every patient in the study had stiffness or tightness of the neck, back, or hamstring muscles. Spontaneous muscle pain was present in 45 patients but could be elicited by manipulation or stretching of muscles in 67 of the 71 patients. The distribution of the patients according to age groups and the type of pain is shown in table 1.

## DOSAGE

The dosage of priscoline® was regulated according to the age of the patient and the response obtained. Except in a few cases, the drug was given routinely every four hours. The maximum doses were 100 mg. orally and 75 mg. intramuscularly. Table 2 shows the doses ıployed in our study. Whenever feasible, the drug was ven intramuscularly initially to permit determination of ts effectiveness. When the drug was not tolerated, the route of its administration was changed. Medication was continued until symptoms abated or disappeared.

TABLE 1.—*Distribution of Patients with Acute Poliomyelitis Treated with Priscoline® According to Age Groups and Type of Pain*

| Age, Yr. | No. of Patients | No. of Patients with Spontaneous Pain | No. of Patients with Elicited Pain |
|---|---|---|---|
| 0- 4 | 23 | 16 | 21 |
| 5- 9 | 26 | 15 | 26 |
| 10-14 | 7 | 1 | 7 |
| 15-19 | 6 | 4 | 5 |
| 20-24 | 6 | 6 | 5 |
| 25-29 | 1 | 1 | 1 |
| 30-34 | 2 | 2 | 2 |
| Total | 71 | 45 | 67 |

## RESULTS

Response to treatment was classified into three groups: (*a*) full effect, (*b*) partial effect, and (*c*) no effect, according to the relief of muscle pain or spasm obtained. Full effect, with complete relief of pain and complete or nearly complete relief of muscle spasm, was obtained in 19 (26.8%) of the 71 patients. Partial effect, with complete relief of pain without striking relief of muscle spasm, was obtained in 26 (36.6%) of the patients. No effect was obtained in 26 (36.6%).

Forty-five of the 71 patients treated with priscoline® showed a desirable response. Nineteen of this group obtained complete relief of muscle pain and spasm, and 26 obtained partial relief. A control group was not used in this study, although there were 70 patients treated without priscoline® concurrently. The purpose of the study was to investigate the ability of this drug to relieve the painful symptoms of acute anterior poliomyelitis, in search for a substitute for the laborious and time-consuming procedure of hot packing. Our results would indicate that at least 26.8% of the patients with acute poliomyelitis with muscle pain and spasm may be treated adequately without hot packs and 36.6% can obtain a moderate degree of relief with priscoline® alone. Some of the patients in the latter group were further relieved of pain and spasm when use of this drug was supplemented with hot packs.

TABLE 2.—*Dosage Schedule of Priscoline® Used in the Treatment of Acute Anterior Poliomyelitis*

| Age, Yr. | Route | Dose Range, Mg. | Mean Dose, Mg. |
|---|---|---|---|
| 1- 4 | Oral | 50-80 | 60 |
| | I. M. | 25-50 | 30 |
| 5-15 | Oral | 50-100 | 76 |
| | I. M. | 25-50 | 42 |
| Over 15 | Oral | 50-100 | 92 |
| | I. M. | 50-75 | 60 |

## UNTOWARD REACTIONS

Seventeen (24%) of the 71 patients had nausea or emesis. Nausea and vomiting occurred in 11 (23%) of 48 patients who received priscoline® orally and in six (12%) of 50 patients who received it intramuscularly. In six patients, two of whom received priscoline® intramuscularly, gastrointestinal symptoms were severe enough for treatment to be discontinued. Vomiting occurred occasionally after the first few doses of priscoline® in some patients but did not appear to be related to the medication. Marked flushing of the skin occurred in 21 patients, with an equal distribution between those treated orally and intramuscularly. Diaphoresis occurred in seven patients, chills in six, diarrhea in one, and palpitation in one. Urticaria occurred in one (1.4%) patient of this group and in one patient in a preliminary study in 1949. Allergic manifestations occurred in the former case in two days and in the latter in 10 days after oral administration of priscoline® was begun. The reaction disappeared after withdrawal of the drug.

TABLE 3.—*Results of Treatment of Acute Poliomyelitis with Priscoline® According to Age Distribution*

| Age, Yr. | No. of Patients with Full *Effect* | No. of Patients with Partial *Effect* | No. of Patients Without Effect | Total No. of Patients |
|---|---|---|---|---|
| 0- 4 | 7 | 7 | 9 | 23 |
| 5- 9 | 8 | 9 | 9 | 26 |
| 10-14 | 1 | 2 | 4 | 7 |
| 15-19 | 1 | 4 | 1 | 6 |
| 20-24 | 1 | 4 | 1 | 6 |
| 25-29 | 1 | 0 | 0 | 1 |
| 30-34 | 0 | 0 | 2 | 2 |
| Total | 19 | 26 | 26 | 71 |

## REPORT OF CASES

CASE 1.—C. L., a 6-year-old white girl, was admitted to the Philadelphia Hospital for Contagious Diseases on Aug. 28, 1949, on the second day of disease, with headache, fever, sore throat,

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1. Smith, E.; Rosenblatt, P., and Limauro, A. B.: The Role of the Sympathetic Nervous System in Acute Poliomyelitis: Preliminary Report, J. Pediat. 34: 1 (Jan.) 1949.
2. Graubard, D. J.; Robertazzi, R. W., and Peterson, M. C.: Intravenous Procaine: Preliminary Report, New York State J. Med. 47: 2187 (Oct. 15) 1947.
3. Smith, E.; Graubard, D. J.; Goldstein, N. P., and Bikoff, W.: A New Method in the Management of Acute Anterior Poliomyelitis, New York State J. Med. 48: 2608 (Dec. 1) 1948.
4. Smith, E.; Graubard, D. J., and Rosenblatt, P.: Management of Symptom Complex in Acute Poliomyelitis, New York State J. Med. 49: 2655 (Nov. 15) 1949.
5. Smith, E., and others: Clinical Management of Acute Poliomyelitis, J. A. M. A. 144: 213 (Sept. 16) 1950.

and pain in the back of the neck. There was stiffness of the back, neck, and hamstrings and slight weakness of the sternocleidomastoid muscles. The spinal fluid was normal. On Sept. 2 there was marked stiffness of the back. The following day she received priscoline,® 75 mg. orally four times daily. On Sept. 3 the symptoms had abated, and on Sept. 4, 30 minutes after an oral dose of priscoline,® hives appeared all over the body but disappeared in eight hours. An intradermal test, on Sept. 5, with 0.1 cc. of 1/10 saline dilution of priscoline® hydrochloride, produced a 2 cm. wheal with pseudopodia and a 4.5 cm. diameter area of erythema. Muscle pain and tightness had disappeared by this time, and except for physical therapy no further treatment was needed. The patient was discharged well on Sept. 9.

Case 2.—R. S., a 4-year-old white boy, was admitted to the Philadelphia Hospital for Contagious Diseases on Sept. 1, 1950, with acute poliomyelitis with paralysis of the lower extremities and the right shoulder. There was considerable pain in the right hip and slight pain in the left hip on admission. The back, neck, and hamstring muscles were slightly tight and painful on flexion. Oral administration of priscoline,® 75 mg. every four hours, was started on Sept. 2, the first dose being followed in three hours by a blotchy red rash on the body. There were no other reactions until Sept. 11, when hives developed. Only slight relief of muscle pain and tightness was obtained.

### COMMENT

The patients selected for the study had marked pain or spasm or both. When response was good, there was definite relief of symptoms within 15 to 30 minutes when priscoline® was given intramuscularly and slightly longer when given orally. The mean oral dose of priscoline® was at least 50% more than the intramuscular dose. The dose was individualized for each patient. The initial dose in most cases was given intramuscularly; it was increased by increments of 12.5 mg. at four-hour intervals until there was relief of symptoms or until untoward reactions appeared. Occasionally, untoward reactions disappeared without the return of pain or spasm after the dose of priscoline® was decreased.

Nausea and emesis developed in 23% of the patients who received the drug orally and in 12% who were treated intramuscularly. The difference is less than 1.5 standard errors and therefore not statistically significant. Smith and associates reported vomiting in 525 (78.7%) of 667 patients in whom relatively large doses were used [5] but in only 5% of 120 patients in another study.[4]

It is suggested that the vasodilatation and the allergic reactions are the result of a histamine-like action of the drug.

Priscoline® in adequate dosage can effectively relieve pain and spasm in some patients with acute anterior poliomyelitis, making thermotherapy unnecessary. It affords adequate relief of symptoms, making sleep and rest possible, and permits more effective physical therapy. It is a welcome substitute for hot packs, which have many disadvantages in the treatment of acute poliomyelitis. It is our opinion that patients with acute anterior poliomyelitis who have muscle pain or spasm should be given a trial with priscoline.® Further study with this and other vasodilator drugs in the treatment of acute poliomyelitis is indicated.

### SUMMARY AND CONCLUSIONS

Seventy-one patients with acute anterior poliomyelitis with muscle pain and spasm were treated with priscoline® (2-benzyl-2-imidazoline hydrochloride). In adequate dosage it completely relieved pain and spasm in 27% of the patients and partially in 37%. The drug was without benefit in about 37% of the patients. A trial with priscoline® for the relief of muscle pain and spasm in the treatment of patients with acute poliomyelitis is justified.

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# HOME CARE FOR THE NEEDY AND MEDICALLY NEEDY

*Franz Goldmann, M.D., Boston*

Care of the sick in their own home (home care) has been, and will continue to be, an essential component of adequate medical care in the widest sense of the term. It was the method of choice for the well-to-do and the lesser evil for persons with limited means in early times, when institutions for the sick were at best glorified boarding houses with medical attendance thrown in for good measure and at worst places of horror. Home care was largely ignored in the period in which scientific medicine made vast strides, hospitalization became safe; professional services and, especially, specialist services as well as technical procedures for diagnosis and treatment were increasingly concentrated in hospitals; urbanization brought with it an apartment civilization; and payment plans for medical care were limited to the cost of catastrophic illness requiring hospitalization. At present, home care is again becoming respectable, if not fashionable. In the future, it is likely to receive growing attention, as advances in scientific medicine, particularly the development of antibiotics and chemotherapeutics, widen the field of activity of general physicians, housing conditions improve for large groups in the population, the mounting cost of medical care forces communities to reexamine the organization of services for the sick, and the need for better care of home-bound patients, particularly those with prolonged illness, is realized.

Home care should be made an integral part of any program of medical care, regardless of auspices or groups covered. Such a statement is easy to make but difficult to translate into a practical and workable plan. The problems are especially intricate if a program of home care is intended solely for the needy (recipients of public assistance) and the medically needy (persons able to maintain themselves but unable to pay for all the medical care needed), whose socioeconomic and health conditions compare unfavorably with those of persons in higher income groups. Yet the obstacles can be surmounted. The guiding principle of sound action can be stated in a single sentence: To be useful, home care must be organized methodically within a given geo-

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Adapted from a paper presented before the New England Hospital Assembly, Boston, March 27, 1951.

graphic area and be provided on the basis of strict requirements assuring qualitative and quantitative adequacy.

### PREREQUISITES

As a general rule home care should be furnished by an organized program only if the physical environment is suitable, the psychological attitudes of both patient and family are favorable, the clinical condition of the sick makes this type of care necessary and feasible, and the service as a whole is properly organized and supervised. Strict observance of these requirements is essential. Nothing would be more deleterious than to provide home care indiscriminately or regard it merely as a cheap substitute for hospital or institutional care.

These prerequisites call for a few comments. The importance of an appropriate physical environment seems to be self-evident, but the evaluation of a given situation is anything but easy. Not only the degree to which fundamental physiological needs can be met but also the degree of physical disability of the patient, his mental capacity and temperament, the adjustment of the family to the patient's illness, and the possibility of preventing accidents—a great danger to shut-ins—must be weighed in determining the chances of success. Moreover, there is an entirely different point deserving consideration. A little apartment on the sixth floor of a walk-up, although not necessarily a seventh heaven for the tenant, may well offer opportunity for the care of the sick in his usual environment, but the physical strength and time of physicians, nurses, and others will be taxed if as many as 10 such patients must be seen on the same day—a rather common experience in large cities. It is therefore imperative to carefully appraise each situation, with consideration of all the factors involved.

The principle of individualizing also must be strictly observed in deciding on the suitability of home care for a patient with a given clinical condition. In general, the type of disease is less important than the degree of disbility and the patient's adjustment to his illness. Comunicable diseases as well as noninfectious diseases can be treated in the patient's home, provided that elementary requirements are met. As ample experience has shown, four categories of health conditions stand out as lending themselves to home care: minor acute illness, prolonged illness, convalescence from acute illness or from exacerbation of prolonged illness after discharge from the hospital, and minor intercurrent illness during pregnancy and in the postnatal period. Numerically and proportionately, patients with prolonged illness are likely to be by far the largest single group of those who badly need and resolutely demand home care, and many of them receive or will receive public assistance.

The generic term "home care" merely denotes the place where care is given. It requires clear definition of the specific services covered. An adequate program of home care should include the services of general physicians and specialists, dentists, pharmacists, social workers, professional nurses and practical nurses, homemakers and housekeeping aides, physical therapists, occupational therapists, nutritionists, and other persons possessing specialized training and skills. It should provide for prescribed drugs, biologicals, dressings, and appliances of various types. Ordinarily only some of these services will be needed by the same patient, although occasionally most, if not all, will be required for a certain period of time.

Need and feasibility of home care should always be determined by the physician in cooperation with the visiting nurse and the social worker. The physician should decide on the medical indication and the type or types of service required, supervise the progress of the case, and be responsible for the adequacy of home care in general. The professional nurse should determine the services to be performed by practical nurses and attendants and supervise their work. The social worker should evaluate the attitudes of the patient and his family and help assure environmental as well as psychological conditions conducive to effective home care.

Inclusiveness of provisions and teamwork in rendering care must be emphasized if home care is to be adequate in quality and quantity and not merely a succession of thinly spread and haphazard services. In addition, arrangements must be made for 24-hour emergency service and for readily available ambulance service.

### ADVANTAGES

As establishment of a satisfactory program of home care involves the organization of a large number and variety of personal services, the question as to whether the potential advantages justify its wider development in urban and rural areas is warranted. The experience gained in this country as well as abroad indicates that many benefits can be derived from a well-organized and judiciously administered system of home care.

First of all, home care can meet the medical needs of those bedridden or home-bound sick and disabled persons, including women with intercurrent illness in the antenatal and postnatal periods, who require attendance by professional and auxiliary personnel but do not need hospitalization or institutional care at all or do not need it any longer. It permits them to stay in, or return early to, their usual environment, close to families and friends, and thereby serves psychological needs as well.

How large a percentage of a given population may be effectively cared for in the home is almost impossible to estimate, owing to the vast differences in age distribution, housing conditions, economic conditions, and incidence and prevalence of illness in various communities. However, some clues are furnished by the experience in long-established programs offering fairly comprehensive service under organized payment plans.

The average annual number of home calls by physicians ranges from 0.1 to more than 1.5 per eligible person under certain programs designed for self-supporting persons and from 0.3 to 1.3 under some programs for recipients of general assistance. It is in the neighborhood of 2.5 per person receiving old-age assistance. The proportion of home calls by physicians to all calls by physicians ranges from a tiny fraction to about one-fourth under programs for self-supporting persons and from approximately one-fifth to one-fourth under programs for recipients of public assistance, depending primarily on the emphasis placed on this type of care. The higher figures observed in the past probably come fairly close to the average to be expected in the future for the general population. They are likely to be exceeded under programs confined to selected economic or age groups, such as the needy or the "senior citizens," especially if truly adequate provisions are made for the home care of persons with prolonged illness. In regard to the average number of nurse visits and hours per eligible person and the frequency of other types of service, such as visits and interviews by social workers, visits by physical therapists, and hours of housekeeping service, only guesses can be ventured, as the data at present available do not lend themselves to definite conclusions. At the risk of laboring the obvious, it must be stated that the need for good, effective, and economical service to the home-bound sick—and not only to patients discharged from hospitals—is the overriding consideration that ought to prompt action in this field.

Fortunately, home care is also advantageous to the hospital and the community. It serves to reduce the demand for expensive services and, especially, to decrease the number of hospital admissions, recurring admissions of the same patient, and days of care in hospitals and related institutions. Time and again thoughtful observers have noted that many patients must be hospitalized, readmitted, or kept in the hospital for long periods of time not because of their clinical condition but because of poor housing in general and crowding in particular, lack of family members or other persons able to devote some time to the care of the patient in his own home, lack of financial resources, or the absence of other equally effective and less costly health services. The sharp rise in the operating cost of hospitals meeting modern standards makes it imperative to observe strict indications for their optimum use, to apply the principle of differentiation of facilities and services according to the specific requirements of various patients much more extensively than in the past, and to develop diversified supplementary services less expensive to maintain than hospitals deserving the name. Obviously, a home care program can benefit the community because it frees beds for functions that cannot be done elsewhere and affords savings in capital expenditures for construction of additional hospital beds in communities not possessing a reasonable number of beds per population. Moreover, it serves to reveal persons in the family who need diagnostic or treatment services and to apply preventive measures to all members of the family or household.

Finally, home care offers unique opportunities for research in the socioeconomic and psychological factors bearing on health and sickness and for education of members of the health and related professions in socioeconomic and psychological factors bearing on health and sickness as well as in management of "ordinary" diseases outside the artificial environment of the hospital. Realization of the value of home care to professional education led to the establishment of noteworthy pioneering programs by some medical schools, such as those at Boston University and Tufts College; it is certain to stimulate the development of similar provisions in communities possessing teaching hospitals.

### COST

Many authors claim that the cost of home care constitutes only a small fraction of that of hospital care. Whether the figures offered in support of such assertions permit generalizations is open to serious doubt. A scientific comparison of the cost of these two types of care must weigh and balance all the numerous factors involved.

A home-bound patient may require only a few types of service in a small amount, say, one visit a week by a physician and two or three visits a week by a professional nurse for several weeks. He may month after month need a great variety and large number of services, such as those of physicians, professional nurses, practical nurses, social workers, physical therapists. homemakers, and housekeeping aides and, in addition, require laboratory tests, sick-room equipment, drugs, dressings, and appliances. Obviously, the number of the various types of service, the number of specific services, and the hours required for nursing and homemaking and housekeeping service, will profoundly affect the average daily cost of home care. The method and rate of payment to those rendering service play a role that must not be underrated. The cost of income maintenance of the needy through public assistance must be taken into account in estimating savings to taxpayers. Last but not least, reduction in the average length of stay in hospitals by early discharge of patients to a home care program does not spell savings in operating cost of hospitals, as the average cost of the patient-day tends to increase with decrease in the average length of stay.

The facts known at present support the statement that home care affords considerable financial advantages to self-supporting persons, to voluntary and public agencies providing for such service under organized programs of medical care, and to taxpayers paying the bill for the care of recipients of public assistance. The extent of savings for individuals, agencies, and the community as a whole varies greatly. Further study of the matter of cost is urgently needed.

### SERVICE ORGANIZATION

In the past, several methods have been employed to make the services of professional and auxiliary personnel readily available to the home-bound sick and to compensate those rendering service. Some have stood the test of time, and some have proved unsatisfactory but continue to be used for a variety of reasons. The lessons learned during the last decades, often through trial and error, permit the formulation of broad principles for the initiation of a service organization designed for the needy and medically needy.

The provision of direct service under the home care program should be decentralized. The service organization should be based on "service districts" to be created within the community. Wherever possible the service districts should be developed around hospitals or unattached clinics, with due consideration to the present geographic distribution of needy and medically needy persons, the future need for home care, and the proximity of the patients' homes to hospitals or unattached clinics. Participation in the program should be open to any duly licensed member of a health profession in private practice, any approved hospital possessing an out-patient department, any approved clinic operating independently of a hospital, and any approved nonprofit agency providing for the services of visiting nurses, homemakers and housekeeping aides, or similar groups.

The emphasis should be placed on close coordination of the services of professional persons in private practice and of full-time personnel on the staffs of hospitals, out-patient departments, unattached clinics, and community agencies. This will serve to make the services of family physicians readily available to the needy and medically needy and to help private practitioners of medicine obtain consultant service, special diagnostic tests, special therapeutic procedures, and the services of other professional and auxiliary personnel as needed. The hospitals should consider the establishment of "general practice clinics" in their out-patient departments in order to facilitate continuity of care of the sick in various stages of illness and to give general physicians in private practice an opportunity to work closely with specialists. Collective agreements pertaining to the service organization should be made between all groups concerned, e. g., public agencies, nonprofit voluntary community agencies, hospitals and clinics, and professional associations.

The persons accepted for home care should be free to choose their own general physician from among those participating in the program, to have their prescriptions filled at any of the cooperating pharmacies, and to obtain prescribed appliances from any of the cooperating suppliers. Ordinarily, the services of specialists and of dentists should be available only on request of the attending physician.

### PAYMENT ORGANIZATION

The cost of home care for persons receiving public assistance is a legal responsibility of the public agencies administering the various types of assistance programs. In order to simplify the administration of the home care program, payment for pertinent services should be made directly to the persons, agencies, or institutions furnishing service, instead of paying cash to the persons receiving care. Agreements providing for such a policy should be concluded with all public agencies, including those administering the four special assistance programs regulated by the Social Security Act and those responsible for general assistance regulated by local statutes.

The cost of home care of medically needy persons should be borne jointly by public agencies and the recipients or jointly by nonprofit voluntary agencies and the patients, the latter to pay a share compatible with family income and obligations. The cost of direct service to the patient should be segregated from the cost of provisions for professional education and research. Special funds should be allotted for the financing of professional education and research.

### CONCLUSION

The broad principles of action discussed here—an outgrowth of many deliberations of a special committee of the Health, Hospitals, and Medical Care Division of United Community Services, Boston—require amplification and consideration of the many administrative details involved, before the plan can be put into effect. Unquestionably, many benefits can be derived from a well-organized and judiciously administered system of home care, whether it is designed for recipients of public assistance or self-supporting persons or both. The success of any program providing for the care of the patient in his own home will largely depend on three factors: methodical organization of all professional and auxiliary services necessary to meet the requirements of the patient, systematic organization of payment for the various services, and, most important, discriminating use of the program in the best interest of the sick.

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# GASTRIC POLYPS

*Harry Yarnis, M.D., Richard H. Marshak, M.D., New York,*
*and*
*A. I. Friedman, M.D., Hackensack, N. J.*

The term polyp has been used to describe any pedunculated or sessile growth arising from the mucosa and projecting into a lumen. This term is not specific, since it includes neoplasms, hyperplasias, and even edematous formations such as nasal polyps. The name polyp should be applied to epithelial projections, while the proper term for the benign polyp in the gastrointestinal tract should be adenoma. The adenoma is a benign proliferative tumor, and the term does not include polyps developing from a gastritis that is due to hyperplasia. The latter are inflammatory lesions, so-called pseudopolyps, and are not the concern of this paper.

The first gastric polyp was described in the 16th century. Morgagni [1] added more specific information to the general description, and Menétrier [2] in 1888 wrote a classic paper on the subject. He believed that they develop from the mucosa by a circumscribed hypertrophy, and indeed most early investigators believed that polyps were a result of chronic gastritis. Meulengracht [3] described histological evidence to support this view. Verse reported cases in which polyps first developed on a base of chronic gastritis and eventually degenerated into carcinoma. Much of the work done on the genesis of epithelial tumors has been stimulated by Konjetzny.[5] He based his work on the irritation theory of Virchow tha gastric carcinoma does not develop in normal gastric tissue. Konjetzny concluded that both benign and the malignant epithelial neoplasms are produced on the soi of a chronic atrophic, atrophic-hypertrophic, or hyperplastic gastritis, but he emphasized the regenerativ rather than the inflammatory changes in the epithelium as the cause of their development. However, almost all o these descriptions in the literature coincide with that o the pseudopolyp arising on a base of so-called hyper-

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Cases 1, 2, and 5 are included by permission of Drs. John H. Garlock, A. Cornell, and B. B. Crohn, respectively.

From the Surgical Service of Dr. Ralph Colp and the Radiological Service of Dr. B. S. Wolf of the Mount Sinai Hospital, New York.

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trophic gastritis and presenting the picture of inflammatory polypoid masses. In this condition the rugae are enlarged and swollen with beaded surfaces that appear congested and may exhibit ulcerations. The ulcerated areas become the seat of inflammatory hyperplasia and form the pseudopolyps. The pseudopolyps are not sharply defined but blend with the surrounding mucosa and, when subjected to active peristalsis, may even develop a pedicle; they are not adenomas. The first antemortem diagnosis of a polyp was made in 1919, when Wegele discovered a piece of tissue attached to the end of a stomach tube. This was later identified as a gastric polyp. In 1922 Schindler first saw a polyp through the rigid gastroscope.

## INCIDENCE

Two groups of cases are reported here. In the first group 73 polypoid adenomas were diagnosed in vivo by gastroscopy, x-ray examination, or both, and the patients were followed from 3 months to 12 years. In the second group 30 adenomas were found in 8,735 routine autopsies. There were 40 males and 33 females among the patients with adenomas found in vivo. All the patients with adenomas were distributed by age groups as follows:

| Ages | In Vivo | Autopsy |
|---|---|---|
| 0-10 | 1 | 0 |
| 20-30 | 2 | 0 |
| 30-40 | 3 | 0 |
| 40-50 | 4 | 3 |
| 50-60 | 6 | 9 |
| 60-70 | 29 | 6 |
| 70-80 | 23 | 11 |
| 80-90 | 0 | 2 |

Of the 73 adenomas found in vivo, 42 were found in more than 2,500 gastroscopies, an incidence of 1.6%. These figures are comparable to those previously reported.[6] The statistics on the general incidence of polyps, however, vary considerably from clinic to clinic. The general incidence is based upon autopsy findings, while the specific incidence is based on gastrointestinal radiologic examination or gastroscopy and varies according to the indication for investigation, the age group, and the skill of the examiner. The general incidence ranges from 0.25% found by Spriggs and Marxer [7] in 4,400 autopsies to 0.7% discovered in a study of 7,000 postmortem investigations by Lawrence.[8] In our series of 8,735 autopsies the incidence was 0.3%, which approaches the lowest figure found by other investigators (table). In this group there were 17 women and 13 men, which is a slight reversal of the previous sex ratio. Most patients were in the seventh decade. Single polyps were found in 22 patients, and multiple polyps in 8. Adenomas were also found in the colon in six patients, or 20%, which is approximately the normal incidence in these age groups.

*Incidence of Adenomas Found at Autopsy by Various Investigators*

| Date | Investigator | No. of Autopsies | No. of Adenomas | Incidence, % |
|---|---|---|---|---|
| 1931 | Stewart [9] | 12,890 | 56 | 0.4 |
| 1935 | Lawrence [8] | 7,000 | 50 | 0.7 |
| 1936 | Rigler and Ericksen [10] | 6,242 | 49 | 0.8 |
| 1940 | Buckstein [11] | 21,026 | 76 | 0.4 |
| 1941 | Spriggs and Marxer [7] | 4,400 | 11 | 0.25 |
| 1951 | Yarnis, Marshak and Friedman | 8,735 | 30 | 0.29 |

## CLINICAL FINDINGS

While the symptomatology of gastric adenoma is not characteristic, bleeding and abdominal pain are the most prominent and significant complaints. Epigastric distress is difficult to evaluate, especially in association with small tumors; this complaint may be due to anacidity and a sequel to atrophy of the mucosa rather than to the adenoma per se. Bleeding may be minimal, with occult blood in the stool, or massive, with hematemesis and melena. Hemorrhage was commoner with the larger pedunculated adenomas than with the smaller sessile variety, but any adenoma, whatever the size, may ulcerate or bleed profusely. One patient gave a history of bleeding and tarry stools for two years. Her last episode of bleeding had necessitated five transfusions. At the time of exploration two adenomas, each 1 cm. in diameter, were found in the pyloric antrum. Several patients had bouts of vomiting caused by an adenoma that entered the antrum and obstructed the pylorus. One man, aged 72, suffered intermittent duodenal obstruction caused by gastroduodenal intussusception of a bilobed adenoma. The number of patients with various symptoms were as follows:

| | | |
|---|---|---|
| Epigastric distress | | 42 |
| Bleeding | | 34 |
| Melena | 24 | |
| Hematemesis | 12 | |
| Guaiac positive stool | | 20 |
| Abdominal pain | | 22 |
| Weight loss | | 17 |
| Weakness | | 15 |
| Anorexia | | 14 |
| Vomiting | | 10 |
| Hepatomegaly | | 9 |

Gastric acidity determinations were available for 55 patients. Of these, achlorhydria was found in 50 or 91%; histamine anacidity was found in 25 or 45%, while normal acidity was present in 5 or 9%. Hyperacidity was present in none. These results agree with those previously reported. Cromer and associates [12] from the Mayo Clinic reported that 85% of 95 patients with gastric adenomas had achlorhydria. Compared with mean acidity for this age, this was 66% higher than the normal incidence of

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gastric acidity for the age group. Achlorhydria is the most consistent laboratory finding associated with gastric adenoma and appears to be related to the presence of atrophic mucosa. In our series an atrophic mucous membrane was present in 38 of the 42 patients examined by gastroscopy. A normal mucosa was seen in the remainder.

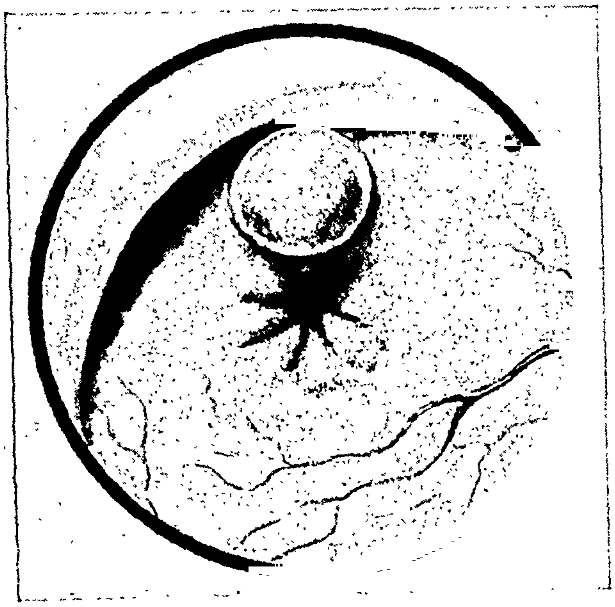

Fig. 1.—Gastroscopic view of solitary prepyloric adenoma and advanced atrophy of mucosa associated with pernicious anemia.

The association of pernicious anemia and gastric adenomas has been recognized clinically for a long time. Brown[13] reported an incidence of 8% of benign gastric tumors in patients with pernicious anemia. In the same series benign tumors were found at only 0.003% of 18,200 routine autopsies. In a similar study Rigler and co-workers[14] found benign tumors associated with this form of anemia in 7%. Other authors[15] have reported a similar high incidence of gastric adenoma in both treated and untreated patients with pernicious anemia. Our series is consistent in this regard in that pernicious anemia was [illegible] in six cases, or 8% of the group (fig. 1).

Ten patients had associated cholecystitis, cholelithi[illegible] or both. Hepatomegaly appeared to be commoner than usual, but more careful analysis of the cases indicated that associated pathology was responsible in at least six of the nine cases in which it was found. An independent unrelated malignant growth was present in seven patients, in the stomach of two and in other parts of the gastrointestinal canal of five. The patient in the following case had multiple adenomas and a benign gastric ulcer associated with an atrophic gastric mucosa.

Case 1.—A 57-year-old man had epigastric pain, occasional nausea and vomiting, and associated hypertension for seven years. A barium meal examination revealed a defect 5 cm. in diameter on the posterior wall of the lesser curvature that was diagnosed as a gastric ulcer. Gastroscopically an ulcer 3 cm. in diameter on the posterior wall high up in the cardia was seen. It had a clean base with smooth margins and was considered benign. Lower down near the greater curvature, opposite the reentrant angle, were three polyps measuring 0.5 cm. in size, smooth, pale red in color, and obviously benign. Laboratory report showed 16 units of fasting free acid and a negative reaction to a guaiac stool test. An exploratory operation revealed a gastric ulcer with smooth, regular edges, which was considered to be benign. The adenomatous area of the stomach was removed in the subtotal gastrectomy, while the ulcer was left behind following the technique of the Madlaner procedure. The pathological report described multiple benign adenomas of the stomach. Repeat barium meal examination one year later did not reveal any evidence of the gastric ulcer.

The following case history demonstrates the presence of multiple benign adenomas without specific symptoms or signs.

Case 2.—A 58-year-old man seen in December, 1950, had complained of fatigue and diarrhea of three to four stools per day for two weeks. The past history, results of physical examination, and laboratory findings were noncontributory. A barium meal examination done elsewhere showed multiple polypoid filling defects in the corpus (fig. 2). Gastroscopy revealed numerous (20 to 30) polyps varying from 2 to 8 mm. in size situated in the upper half of the stomach on both the anterior and posterior walls. Some were sessile and others pedunculated. Superficial ulceration was present in several of the larger tumors, but their general appearance was that of benign adenomas. However, the possibility of carcinomatous degeneration could not be completely excluded. The entire gastric mucosa appeared smooth and pale red. The rugae were normal (fig. 3). A subtotal gastrectomy was performed. Pathological examination revealed multiple adenomatous polyps on both the anterior and posterior walls of the stomach, with slight superficial erosions or hemorrhage. The adenomas were freely movable.

This case history illustrates the marked anemia that may occur as a result of hemorrhage from a huge pedunculated adenoma.

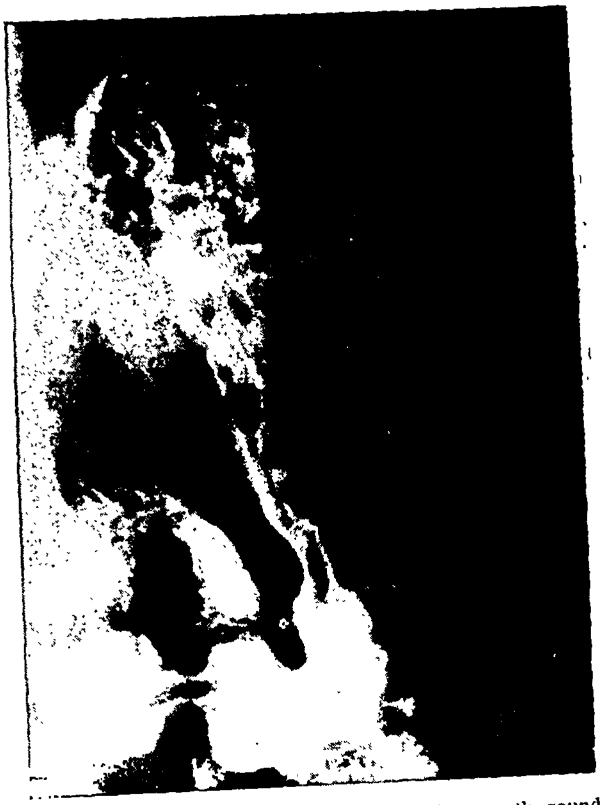

Fig. 2 (case 2).—Roentgenogram showing multiple, smooth, round, fill defects from 0.5 to 1 cm. in diameter in the upper half of the stomach.

Case 3.—A 70-year-old woman seen on Sept. 20, 1949, co plained of epigastric distress of two years' duration. One y previously a cholecystectomy for cholelithiasis had been p formed. She was improved for nine months, when her up abdominal distress returned, accompanied by flatulence and sociated with progressive weakness and anemia. In one mo she received four transfusions. Physical examination was n

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contributory except for blood pressure of 204/80. Laboratory examination showed histamine anacidity; 4+ reaction to a guaiac stool test; a hemoglobin level of 10 gm. per 100 cc.; 2,000,000 red blood cells; and 5,850 white blood cells. Barium meal examination revealed a smooth, filling defect measuring 7 cm. in diameter and occupying the upper third of the stomach. Streaks of barium within the mass suggested lobulation (fig. 4). Gastroscopy disclosed a polypoid tumor the size of a lemon on the posterior wall of the fundus. The mass appeared bilobular, and the mucosa over the surface was red and mildly pitted but intact. There were several smaller sessile polyps in the fundus nearby, measuring 3 to 6 mm. in diameter. All were covered by intact, smooth mucous membrane. The gastric mucosa was atrophic, with diffuse grayish areas where branching blood vessels were visible; the rugae were thin (fig. 5). An abdominal exploratory operation and a subtotal gastrectomy were performed. Pathological examination confirmed the gastroscopic findings and revealed the presence of benign adenomatous polyps. The patient recently died of a myocardial infarct.

This patient had multiple adenomas of the stomach, all of which were not removed at the time of operation in 1942. He has been followed since then.

Case 4.—N. K., a 56-year-old housepainter, was first seen in January, 1942, with a chief complaint of intense burning epigastric pain of six weeks' duration unrelieved by food or alkalies. Physical examination revealed some epigastric resistance and tenderness. Results of laboratory examination and electrocardiography were noncontributory. A Rehfuss test meal revealed no free hydrochloric acid, and blood was present in all specimens. A barium meal examination revealed several smooth filling defects about 1 cm. in diameter along the greater curvature of the stomach near the antrum. The report of a gastroscopic examination stated that on the greater curvature aspect of the antrum opposite the angularis there were five sessile polyps, about 3 mm. in diameter, covered by normal mucosa. Peristalsis passed readily through this area. In the region of the reentrant angle there were two additional polyps, slightly larger. The surface of the tip of one of the latter polyps was grayish in color, suggesting malignant degeneration. The mucosa appeared smooth and orange-red in color. In the corpus the rugae were thickened and prominent. The impression was polyposis of the antrum, with the possibility of malignant degeneration. Exploratory abdominal operation was done, and a subtotal gastrectomy performed. The pathological diagnosis was multiple adenomatous polyps of the stomach, with no evidence of malignancy. In March, 1942, this patient was again seen, still complaining of weakness and occasional epigastric discomfort. Gastroscopic examination revealed a yellowish-red sessile adenoma 3 mm. in diameter 1 in. (2.5 cm.) proximal to the stoma on the greater curvature aspect. There was no abnormality in the remainder of the stomach. In April, 1944, another gastroscopic examination disclosed two small sessile adenomas on the anterior margin of the stoma near the greater curvature. One of these was yellow in color; the mucosa of both was smooth and intact. This man had repeated gastroscopic examinations in 1946, 1947, 1949, and 1950, with no change observed in the appearance of the two residual adenomas. His general condition is good; his weight is stationary, and he has no complaints referable to the gastrointestinal tract.

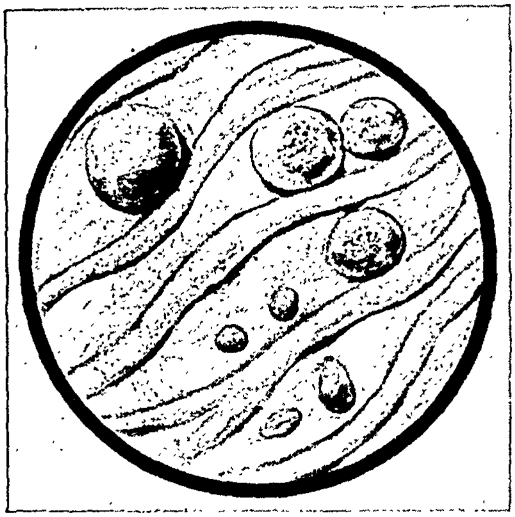

Fig. 3 (case 2).—Multiple adenomas between rugal folds, as revealed by gastroscopy. Three of the adenomas show superficial ulceration.

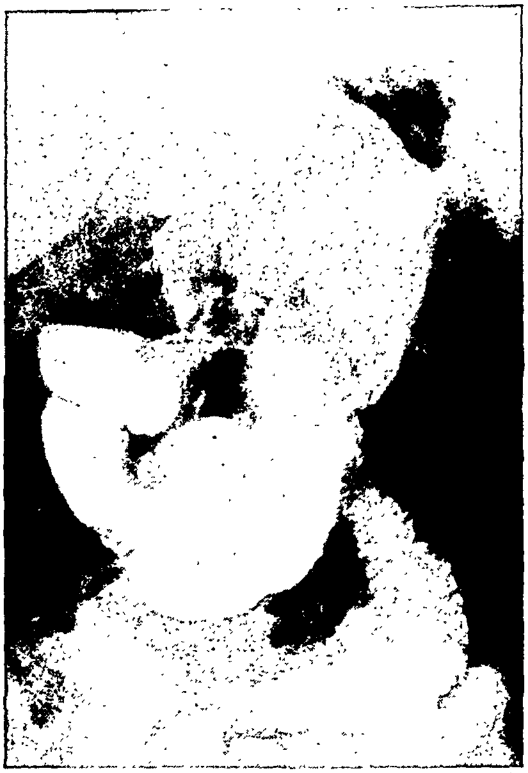

Fig. 4 (case 3).—Roentgenogram showing large, fairly smooth defect, 7 cm. long, in the upper third of the stomach. Streaks of barium can be seen in the mass, indicating lobulation.

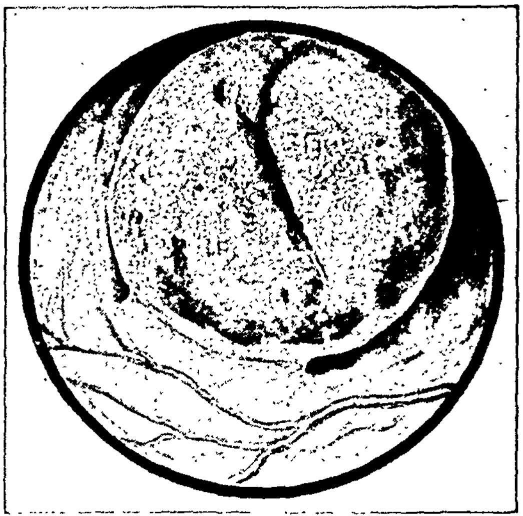

Fig. 5 (case 3).—Large adenoma with minimal pitting of the surface, as revealed by gastroscopy. The adenoma is attached by a broad-based pedicle to atrophic mucosa.

Multiple adenomas were found in 37 and single adenomas in 36 patients. All patients with more than one adenoma were included in the multiple group. Most of the adenomas that we have seen were pea-sized, approximately 0.5 cm. in diameter, and were usually round, but the filiform type was not uncommon. They were most commonly distributed over the lower third of the stomach.

ROENTGENOLOGIC FINDINGS

Roentgenologically adenomas are visualized as rounded, smooth, translucent filling defects that may produce a widening and displacement of the normal rugal folds. There is no interruption of the gastric contour or peristalsis. Surface irregularity of the adenoma is not revealed by x-ray or gastroscopic examination, and ulceration is very rarely demonstrated. However, sharp relief views of the tumor are obtained because of the dry atrophic mucosa that is usually present. Sessile tumors are encountered along the contours; pedunculated adenomas are not infrequently found as central gastric defects. The latter are freely movable, and when large and in the antrum may produce a ball-and-valve effect to obstruct the pylorus. As a rule the pedicles are short, but as the tumor grows the stalk elongates. The pedicle should be distinguished from a rugal fold lying in the wake of the adenoma, as the latter exerts traction on the gastric mucosa. At the same time, adenomas that are less than 0.5 cm. in diameter may be difficult to differentiate from rugal folds, especially when the folds are seen on end. Lesions on the greater curvature may be overlooked oftener, because here the rugal folds appear much thicker. Also, if excessive secretions are present, identification of adenomas may be difficult. Air bubbles or particles of food may be a source of confusion. Air bubbles move along with a peristaltic wave, tend to coalesce, and are widely dispersed by palpation. A foreign body may be confused with an adenoma; in these instances discovery of a stenotic lesion distal to the supposed tumor will emphasize the possibility of a foreign body.

Occasionally the body of a tumor prolapses into the duodenum as a result of active peristalsis. Rarely, an adenoma may produce an intussusception of the stomach into the first or second portions of the duodenum by traction on the mucosa. On the other hand, large prolapsing folds from the antrum into the duodenum may simulate polyps. The mushroom shape of these folds in the duodenum and their variability on repeated examination will identify prolapsed mucosa. In hypertrophic gastritis the gastric walls are stiffer and less pliable than normal. The large rugae may simulate polyps or diffuse polyposis. Examination of the mucosal pattern with compression usually will clarify the picture in these instances. We have not found the various methods of introducing air into the stomach advocated by Ruzicka and Rigler,[16] Wasch and Epstein,[17] and Pirkey [18] for identifying adenomas superior to the compression technique. We usually employ small amounts of barium for mucosal relief studies in the search for adenomas, but occasionally the tumor will be shown more clearly in a barium-filled stomach. It is important to use gentle compression because too much pressure will obliterate the outline of a soft polyp. Rarely, the contour of a soft polyp will change under varying degrees of compression. When the patient is muscular or obese, the adenoma may be found more easily by making roentgenograms with the patient in the supine position with the left side elevated, thus affording an air contrast study.

GASTROSCOPIC FINDINGS

As seen with a gastroscope, the adenoma is a discrete, sharply demarcated tumor covered by a smooth intact mucosa; the tumor is usually sessile but may be broad-based or pedunculated. Occasionally the surface may be granular or even mildly pitted like a strawberry. The color of the adenoma is usually orange-red, but variations in its intensity may occur. Frequently the adenoma appears cherry-red. This may be more apparent than real because it is in contrast with the grayish hue of the atrophic mucous membrane of the surrounding area. Occasionally hemorrhages on the surface will produce a characteristic burgundy color. When the tumor appears orange-red in color, there is no difficulty in diagnosis. Changes in color may be difficult to evaluate. When there is a slight grayish discoloration at the tip, it may be impossible to state that the lesion is benign or malignant, despite its smooth surface. However, if the surface is mottled with gray or grayish white streaks, it is very likely that the lesion is a carcinoma.

Occasionally ulceration or central umbilication may be present. Ulceration occurs oftener in large pedunculated tumors in the antrum, where trauma and perhaps peptic acid during digestion causes superficial ulceration. Near the cardia, too, adenomas tend to be ulcerated because of trauma from ingested food. While superficial ulceration per se is compatible with a benign adenoma, deeper and more pronounced ulcerations are more difficult to evaluate. In our series there were seven cases in which malignant degeneration was suspected because ulceration was present. However, no evidence of malignancy was found after operation. Pseudopolyps are not infrequently found in patients with hypertrophic gastritis; we have had three such cases, which are not included in this series. We have not seen a true adenoma associated with hypertrophic gastritis.

MALIGNANT DEGENERATION

The belief that malignant degeneration develops in gastric adenoma has long been held. However, there is a wide variation in the incidence of carcinomatous degeneration in these tumors. Brunn and Pearl [19] report malignant degeneration in these tumors in 51% of 41 cases. Lawrence found malignant lesions in 3 out of 50 cases, or 6%, but he included concomitant gastric malignant lesions to raise the actual percentage to 18%. Other authors include accompanying gastric malignant lesions to increase the actual frequency of carcinoma. Properly there should be no statistical relationship unless the adenoma itself shows malignant degeneration. On the other hand Carey and Hay [20] in an excellent article declare that there is no direct relationship between the development of carcinoma and the benign gastric adenoma and therefore their incidence was reported as zero. These authors have followed 20 patients with single benign adenomas for from one to nine years, and 10 patients with multiple benign adenomas for one to seven years without development of carcinoma. They have not been able to demonstrate a transition from a benign to a malignant adenoma. Klein and Geller [21] recently described a case of multiple gastric polyps associated with hypertrophic gastritis. Two years after the initial gastroscopic observation a carcinoma developed at the site of one of the polyps. Other gastroscopists [22] have identified and reported malignant changes in adenomas, with an incidence ranging from 10 to 20%.[23]

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[16] Ruzicka, F. F., and Rigler, L.: Inflation of the Stomach with Double Contrast: A Roentgen Study, J. A. M. A. 145:696 (March 10) 1951.

[17] Wasch, M. G., and Epstein, B. S.: Roentgen Visualization of Tumors of the Cardia, Am. J. Roentgenol. 51:564, 1944.

[18] Pirkey, E. L.: Double Contrast Roentgenograms of the Stomach: An Additional Aid in Diagnosis, Am. J. Roentgenol. 62:70, 1949.

[19] Brunn, H., and Pearl, F. L.: Diffuse Gastric Polyposis Adenopapillomatosis Gastrica, Surg., Gynec. & Obst. 43:559, 1926.

The question of whether malignant degeneration occurs in gastric adenomas is difficult and controversial. The different standards for pathological diagnosis undoubtedly account for the variation in statistics. It is important that criteria for malignancy be very specific. Grossly the benign adenoma is soft and distinct. When nodular masses are palpable within its substance, it is likely to be malignant. Microscopically the adenoma possesses an orderly arrangement of cuboid epithelial cells lining the gland spaces in a regular fashion. Occasionally the gland formation is elongated and highly convoluted, with irregular tubules. The lining epithelium may contain many goblet cells that, when piled up, may result in cystic formations within the glands. The microscopic diagnosis of carcinoma is based upon the cytological findings and the degree of infiltration. There is a wide range of opinion as to the degree of cellular anaplasia and glandular hyperplasia that constitutes malignancy. In the opinion of some pathologists, changes in the tip of a tumor in which the cells are undifferentiated and the nuclei exhibit hyperchromatism are adequate for a diagnosis of carcinoma. Others believe that marked distortion of the normal glandular architecture together with these cellular changes are required. Still others feel that infiltration of the submucosa must be present before a definite diagnosis of carcinoma can be made. Our pathologist [24] believes that the presence of residual adenomatous tissue and carcinoma in the same lesion is presumptive evidence of carcinomatous degeneration in an adenoma.

In our series gastric adenomas with carcinomatous degeneration were revealed microscopically in two cases.

Case 5.—A 57-year-old woman died following amputation of the foot for diabetic gangrene. Postmortem examination disclosed a soft polypoid mass measuring 5 cm. by 2 cm. and covered by normal mucosa on the posterior gastric wall near the greater curvature, 6 cm. above the pylorus. Microscopically the mass was described as an adenomatous polyp with marked cell differentiation and proliferation. An acute infectious process was superimposed there. There was one area with very distinct cell anaplasia and pale nuclei. Though no definite invasion of the stomach could be ascertained, this area can be regarded as carcinomatous change in an adenoma.

Case 6.—In this case a 47-year-old man died following resection of the transverse colon for carcinoma. Small, pedunculated, grape-like polypi were found throughout the entire stomach except for a 2 cm. strip on either side of the greater curvature. One polyp near the antrum was ulcerated and irregular. Microscopic section revealed hypertrophy and hyperplasia of the gastric glands, with atypical cells invading the muscularis mucosa. The pathological diagnosis was carcinomatous degeneration in an adenomatous polyp.

In the clinical series there were two patients with evidence of malignant degeneration.

Case 7.—G. K., a 53-year-old housewife, was seen in 1935 with a history of weakness, pallor, shortness of breath, and palpitation of three months' duration. In addition, she complained of epigastric fulness after meals, and had suffered a weight loss of 9 lb. (4.1 kg.). Physical examination revealed a pale, chronically-ill woman. The hemoglobin level was 50 gm. per 100 cc. There were 4,400,000 red blood cells, with a normal differential count. A guaiac stool test gave negative results, and the urine was normal. A Rehfuss test meal showed achlorhydria. A barium meal examination disclosed a smooth, rounded, lobulated defect within the duodenal bulb, which was interpreted as a prolapsed gastric polyp. Gastroscopy was not performed. Exploratory laparotomy revealed a pedunculated, prolapsed adenoma 4 cm. long by 2.5 cm. wide arising from the posterior wall of the antrum of the stomach. This was excised locally and appeared benign on gross inspection; a frozen section was not deemed necessary, but histological examination revealed a polypoid adenoma with carcinomatous transformation in the tip. The pedicle was not infiltrated. The patient made an uneventful recovery.

The patient was readmitted in November, 1937. At this time she had lost 10 lb. (4.5 kg.) and was anemic. A mass was palpated in the epigastrium. The liver and spleen were both palpable. There were 63 gm. of hemoglobin per 100 cc., 4,500,000 red blood cells, and 7,900 white blood cells, with 84% polymorphonuclear cells. Results of guaiac stool tests were positive. There was no free hydrochloric acid on a Rehfuss test meal. Gastrointestinal study revealed a dilated stomach with retained secretions and almost complete residue on a 6 hour film. There was a marked defect in the antrum that produced pyloric obstruction. An exploratory laparotomy revealed carcinoma of the antrum of the stomach, with metastasis to the liver and pancreas.

The following is the only case history in our series of a patient who had an adenoma of the gastric antrum diagnosed endoscopically and roentgenographically, and who returned four years later with carcinoma of the stomach in the same area.

Case 8.—G. K., a 50-year-old woman, was seen in June, 1947, with a 20 year history of epigastric pain, nausea, and postprandial vomiting. Physical examination was noncontributory. Laboratory examination revealed a hemoglobin level of 11.6 gm. and 3,600,000 red blood cells. A Rehfuss test meal showed achlorhydria. A gallbladder roentgen study was negative. Barium meal examination disclosed a small circular filling defect approximately 1 cm. in diameter in the region of the antrum. The impression was that the defect was a gastric polyp. Gastroscopy revealed a sessile polypoid tumor about 8 mm. in diameter on the anterior wall of the antrum just distal to the angularis. The tumor was sharply defined, and the mucosa over the lesion was smooth and orange-red, except at its very tip where it appeared grayish. There was no evidence of ulceration. Peristalsis proceeded uninterruptedly from the angularis through the site of the tumor to the pylorus. The corpus of the stomach revealed atrophy of the mucosa. The gastroscopist did not feel that the grayish discoloration in the tip was enough to warrant the diagnosis of a malignant lesion. The diagnosis of a gastric

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20. Carey, J. B., and Hay, L.: Gastric Polyps, Gastroenterology **10**: 102, 1948; Symposium on Gastric Neoplasms: Gastric Polyps, Gastroenterology **14**: 280, 1950.
21. Klein, H. C., and Geller, J. S.: Gastric Polyp to Gastric Carcinoma, Gastroenterology **17**: 442, 1951.
22. Brunn and Pearl.[19] Carey and Hay.[20]
23. Hardt, L. L.; Steigmann, F., and Milles, G.: Gastric Polyps, Gastroenterology **11**: 629, 1948.
24. Klemperer, P.: Personal communication to the authors.

adenoma was made, and the patient was advised to return in six months for repeat examination. She was not seen again until March, 1951. During the interval she had been relatively symptom-free. At this time a barium meal examination revealed an irregular filling defect of the anterior wall of the antrum 3 cm. in diameter in the region where the adenoma had been previously identified. A subtotal gastrectomy was performed, and the resected specimen showed a tumor 4 cm. in diameter on the anterior wall of the proximal antrum. There was extensive central ulceration surrounded by thickened everted margins; there was no gross evidence of residual adenoma. The microscopic report described the lesion as an infiltrating medullary adenocarcinoma of the stomach.

Because of the inadequate follow-up of this patient the original nature of the lesion cannot be diagnosed with any degree of certainty. There are three possibilities. First, that it was an adenoma that underwent malignant transformation; second, that it was a carcinoma from the very beginning; and third, that an independent carcinoma arising in the antrum completely overgrew and destroyed an original adenoma. Despite the fact that there is no definite proof that malignant transformation developed in this lesion, this case illustrates that any discoloration of the tip warrants excision.

## TREATMENT

The treatment of gastric adenomas has varied from conservative therapy to vigorous surgical intervention. Paul and Logan,[25] for example, feel that small adenomas that appear benign gastroscopically should not be removed. Others, like Edwards and Brown,[26] are of the opinion that all gastric adenomas should be surgically excised. While it is difficult to formulate a completely definite program for treatment of gastric adenomas, we have arrived at certain conclusions. We feel that the management of a patient with gastric adenomas depends on the symptomatology, the multiplicity of the lesions, and their gastroscopic appearance. In the case of the small solitary tumor less than 1 cm. in diameter, whether it is sessile or pedunculated, if the gastroscopic appearance is definitely that of the benign lesion it is justifiable to treat this patient conservatively, with follow-up examinations every months. We must emphasize that it is not always possible with small sessile lesions to visualize all the benign qualities of gastric adenomas.

When any doubt exists, excision is recommended. On the other hand the large solitary tumor, whether sessile or pedunculated, produces symptoms either of bleeding or of obstruction. When gross pathology appears benign and this is corroborated by frozen section, only local excision of the tumor is required. If the adenoma is pedunculated and frozen section substantiates the benign characteristics of the lesion, a resection of the stalk may be adequate. The management of the patient with multiple adenomas is essentially similar to the above, except that when large numbers of lesions are present, gastroscopic observation of individual lesions is much more difficult and may be impossible. Therefore, surgical intervention in these cases is recommended, with high subtotal gastrectomy and removal of all the polypoid lesions.

## FOLLOW-UP

Operation was performed in 37 cases in this series. Gastrotomy with excision of the adenoma was done in 13 patients. Subtotal gastrectomy was performed in 24 cases, 12 of multiple adenomas in which the entire adenomatous area of the stomach or as much of the mucosa as possible was removed. At the present time we have followed 68 of the 73 patients. Fifty-four patients are living and well. One patient (case 8) has recently been operated on for gastric carcinoma. Thirteen are dead, 4 of myocardial infarction owing to coronary artery disease. Seven patients have died because of malignant growths, two of carcinoma of the stomach not related to adenoma and one (case 7) of carcinoma developing in a gastric adenoma. Two have died of carcinoma of the pancreas, one of lymphosarcoma of the ileum with metastasis, and one of generalized carcinomatosis arising in the rectum. One patient died of cirrhosis of the liver, and one died of unknown causes.

In the series in which operative treatment was given 26 patients are living and well. Four have been followed for 10 years of more, 3 for 5 years or more, 11 between 2 and 5 years, and 7 two years or less.

In the group who did not have operations 28 patients are living and well. One has been followed more than 10 years, 6 more than 5 years, 17 between 2 and 5 years, and 5 two years or less. Gastroscopic follow-up has been maintained in 1 patient (case 4) who was treated surgically and 13 patients who were not treated by operations. Three patients have been observed more than five years, eight between two and five years, and two less than two years.

## SUMMARY

Seventy-three cases of gastric adenomas are presented, in 42 of which adenomas were found in a series of 2,500 gastroscopic examinations. Bleeding was a significant symptom. Achlorhydria was found in 50 of 55 patients tested, and an atrophic mucosa was seen by gastroscopy in 38 of 42 patients. In no instance was adenoma associated with hypertrophic gastritis. Thirty adenomas were found in 8,735 autopsies. Malignant transformation was present in two, or 6.7%.

In 36 cases gastric resection was done. Malignant degeneration of an adenoma was reported in one patient. Another patient in whom an adenoma of the antrum was diagnosed gastroscopically and roentgenologically returned four years later with a medullary carcinoma in the same area. However, proof of malignant degeneration in this case is lacking. Thirty-two who did not have resections have been followed from 1 to 10 years. No evidence of malignant degeneration has been observed in these patients.

Conservative therapy with frequent gastroscopic observations should be reserved only for the small solitary adenoma presenting benign characteristics. Our series reveals that malignant degeneration is not frequent. However, when slight deviations from the normal adenoma occur in the color or surface of a small sessile tumor, its precise histological nature cannot be determined by gastroscopy and surgical excision is recommended. At the time of operation a frozen section will determine whether local or radical excision should be performed.

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[25] Paul, W. D., and Logan, W. P.: Polyps of the Stomach with Reference to Gastroscopic Findings, Gastroenterology 8: 592, 1947.

[26] Edwards, R. V., and Brown, C. H.: Benign Disease of the Antral Portion of the Stomach: Benign Gastric Polyps and Their Relation to Carcinoma of the Stomach, Gastroenterology 16: 531, 1950.

# "PROFILE LINE" IN ROENTGENOLOGIC DIFFERENTIATION OF INTRINSIC AND EXTRINSIC LESIONS OF THE STOMACH

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*and*
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In 1947, a middle-aged man was seen with a chief complaint of vomiting blood and tarry stools. His clinical findings indicated a probable peptic ulcer. He subsequently underwent several fluoroscopic examinations, the first of which revealed what was thought to be a deformed duodenum with a probable ulcer crater. However, there was noted some suspicious irregularity about the cardia of the stomach, and, as a result, the patient was reexamined several days later.

A spot x-ray (fig. 1) of the stomach, made with the patient in deep Trendelenburg position and also rolled a bit on his left side in an attempt to get the weight of the barium as much as possible in the fundus of the stomach, showed several centimeters between the most superior barium and the diaphragm, with considerable irregularity of the gastric mucosa in the area. Exploration was advised.

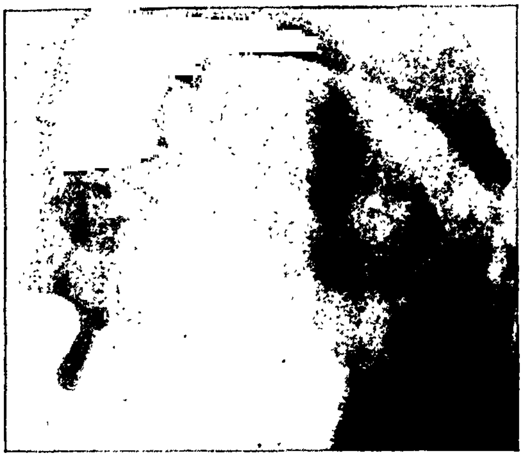

Fig. 1.—Spot roentgenogram of barium-filled stomach in deep Trendelenburg position. Note the distance between the diaphragm and the superiormost barium and the irregular mucosal pattern. Exploratory laparotomy showed chronic hypertrophic gastritis and splenomegaly.

Several days later, an exploratory examination was made; there was no evidence of a tumor, but there was a penetrating ulcer of the posterior wall of about the midportion of the body of the stomach which had entered the pancreas and from which the bleeding was thought to arise. The fundus of the stomach itself showed evidence of hypertrophic gastritis. Interestingly, the spleen was enlarged to about three times normal size and extended over the fundus of the stomach, so that its medial edge was in contact with the esophagus. It was felt that the radiographic findings simulating a tumor of the fundus of the stomach were due to the presence of the large spleen separating the stomach from the diaphragm and to the hypertrophic gastritis.

As a result of this case, we started to consider methods by which we could determine the extent of pathological changes in the portion of the stomach above the usual reach of palpation. Some means was needed to enable us to produce controlled pressure to smooth out the physiological irregularities, to determine whether the deformity was due to intrinsic pathological changes in the gastric wall, or to the presence of adjacent organs, or to the presence of masses indenting the fundus (fig. 2 and 3).

The portions of the stomach that are not available for palpation have long offered radiologists considerable difficulty in diagnosis. In the lower half of the stomach, including the duodenum, where palpation is usually possible, small lesions may be definitely localized. Also, the elasticity, mobility, and motility of that portion of the stomach wall is easily determined, but for the area above the lower costal margin ordinary methods of examination are not available. Approximately 5% of all gastric tumors are found in the upper half of the stomach, and, with the recent improvements in surgical techniques, operative intervention for pathological changes in this area is becoming more and more frequent, so that it behooves radiologists to pay more attention to this area of the stomach.[1]

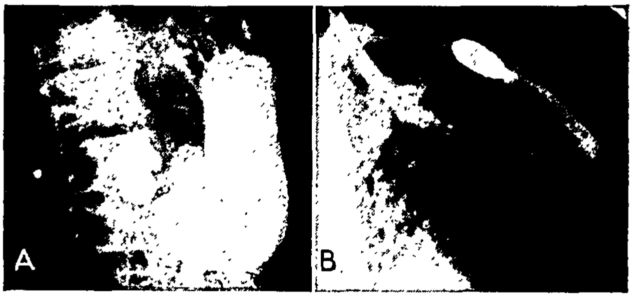

Fig. 2.—*A*, right anterior oblique roentgenogram of barium-filled stomach, showing irregularity of fundus produced by spleen. *B*, balloon in place, showing the irregularity ironed out and the smooth "profile line" continued over the spleen.

Inoperable tumors of the stomach are becoming more and more rare, although a considerable number are still nonresectable. The earlier we can make a definite diagnosis in inaccessible regions of the stomach, the greater the percentage of tumors that will be resectable.[2]

The method we describe [3] is not new, as several others in the past have accomplished approximately similar

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From the Department of Radiology, University of Louisville School of Medicine.

This project was supported in part by a grant from the Kentucky State Research Commission.

Read before the Section on Radiology at the One-Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

[1] Carman, R. D.: Technical Aids in the Roentgenologic Demonstration of Lesions High in the Stomach and on the Posterior Wall, Radiology 4: 33, 1925. Sherman, R. S.: Roentgen Diagnosis of Cancer of the Cardiac Region of the Stomach, Surgery 23: 874, 1948.

[2] Marvin, C. P., and Walters, W.: Leiomyosarcoma of the Stomach; Review of 16 Cases and Report of Case of Multiple Leiomyosarcomas of the Stomach, Arch. Surg. 57: 62, 1948.

[3] Pirkey, E. L.: Double Contrast Roentgenograms of the Stomach; Additional Aid in Diagnosis, Am. J. Roentgenol. 62: 70, 1949.

results, with slightly different techniques. None of them, however, has investigated the method to any appreciable extent, particularly as regards the correlation with the pathological findings.[4]

The actual procedure consists of the usual roentgenoscopic examination of the stomach, followed by the customary x-rays. If something unusual is seen above the usual area of palpation, the patient then swallows an ordinary stomach tube with a fresh latex condom tied tightly proximal to all the holes.[3] Once the tip of the tube is seen to be in the stomach, the balloon is inflated slowly by means of a blood pressure cuff bulb. The degree of inflation is watched closely with the roentgenoscope, and the effects of varying pressures in the suspected area are studied.

Figure 4 shows a normal stomach during the various stages of inflation. These x-rays are made with varying amounts of air in the balloon to show the general appearance of the stomach as it inflates during the roentgenoscopic examination. Inflation may be stopped at any time and x-rays made. The amount of air necessary to obtain the proper information varies with each case. Generally, however, the more air introduced, the more diagnostic the examination. In pressure studies, we found that the intragastric pressure used never exceeded 20 mm. of mercury, which is thought to be well below any dangerous level.[3]

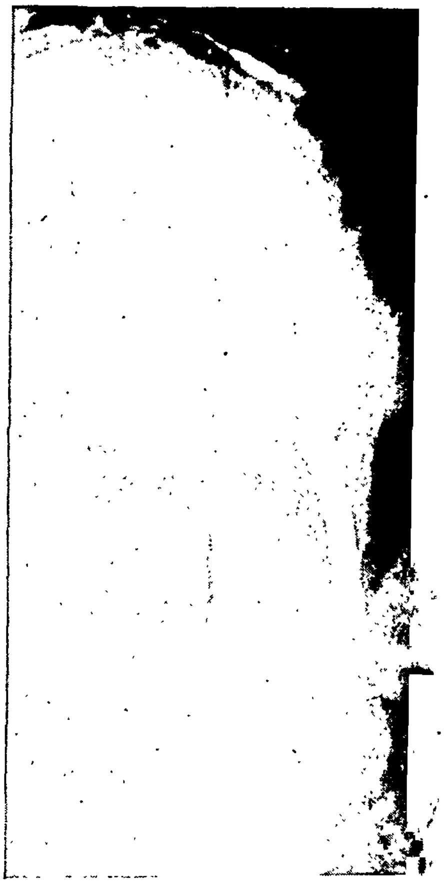

Fig. 3.—Barium and balloon-filled stomach in right anterior oblique position, showing smooth "profile line" along the greater curvature, which is indented by the spleen.

Rotation and tilting of the patient from the Trendelenburg (fig. 5) to the Fowler position will move the air-filled balloon rather freely in the stomach, with the barium always going to the more dependent portions of the stomach.

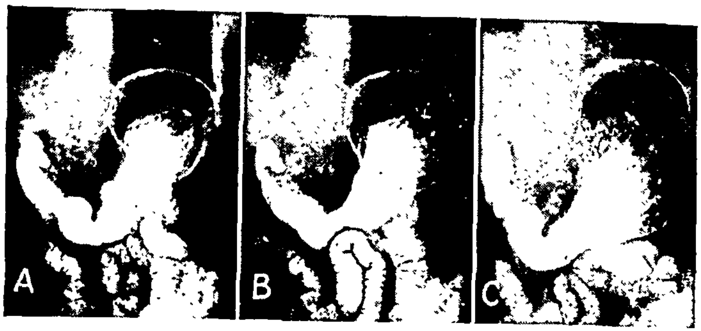

Fig. 4.—A series of x-rays of a normal stomach, showing the changing appearance of it as the balloon is inflated. Note the mucosal pattern and the "profile line."

In very slender patients with the hyposthenic type stomach, the lower end of the balloon frequently is easily palpable in the pyloric region. With pressure on the lower end of the balloon with the finger, transmitted pulsations to the fundus may be observed, enabling one to study better the elasticity of the fundus of the stomach. The exact amount of soft tissue between the diaphragm and the fundus of the stomach may also be studied in various positions.

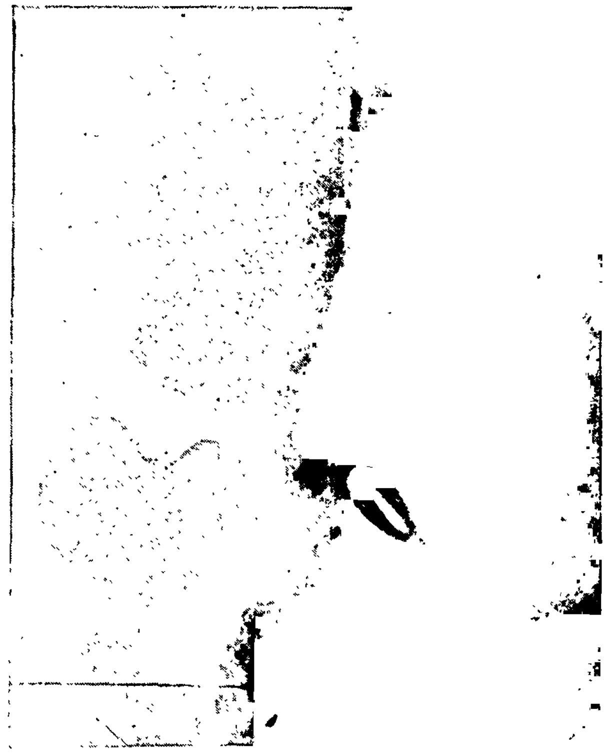

Fig. 5.—Right anterior oblique view of the barium-filled stomach with an inflated balloon, showing irregular "profile line" along the lesser curvature. This was found to be infiltrated with carcinoma at laparotomy.

To date, none of our patients has complained of discomfort, except occasionally of a slight sense of fulness when the stomach is distended. At least four of our balloons have ruptured in the stomach. This was because of the fact that the balloons were old and was not due to overdistention. In several of the patients, the rupture was observed with the roentgenoscope, and the patients did not realize what had occurred. This is to be expected, because, even though the balloon may burst, the intragastric pressure is not changed, and the gastric distention remains the same until the patient belches.

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[4] Colcher, A. E.: A New Displacement Technic for Study of Gastric Mucosal Relief; Preliminary Report, Radiology **29**: 615, 1937. D'Eloia, A. S.: Pneumogastroscopy; Preliminary Report, Am. J. Surg. **53**: 280, 1941. Gruber, F.: A New Method of Studying the Anatomy and Motility of the Stomach and Duodenum, Exper. Med. & Surg. **2**: 1, 1944. Le Canuet, R.; La Pipe, M., and Pritchard, R.: Une technique d'exploration radiologique de l'estomac. La compression par ballon intragastrique, Arch. d. mal de l'app. digestif **35**: 460, 1946. LaTraverse, V.: A Procedure Helping the X-Ray Examination of the Gastro-Esophageal Segment, Am. J. Digest. Dis. **14**: 298, 1947. Ruzicka, F. F., Jr., and Rigler, L. G.: Inflation of the Stomach with Double Contrast; Roentgen Study, J. A. M. A. **145**: 696 (March 10) 1951.

After inflation of the balloon and study of the best positions in which the x-rays should be made, we customarily have stereoscopic x-rays made in the right anterior oblique position, in which the fundus is the highest portion and the balloon is in that area, and the barium is in the pyloric end of the stomach. Additional stereoscopic x-rays are then made in the left posterior oblique position, in which the opposite conditions obtain.

The following roentgen signs have been found to be helpful in the differential diagnosis of the condition in the patients studied.

1. Elasticity, mobility, and motility of the gastric wall. These are not unique with the balloon; with it, however, it is possible to obtain more detailed information above the rib margin.

2. The mucosal pattern of the stomach is frequently better seen with this method; because of the splinting action of the balloon, stereoscopic x-rays of the upper half of the stomach aid greatly in the study of the rugal folds.

3. The "profile line" is of considerable aid in demonstration of the presence of infiltrating lesions of the mucosa. This consists of a thin layer of barium sulfate trapped between the distended balloon and the smoothed-out normal mucosa. We have found that, if the mucosa is roughened owing to an infiltrative process, then the "profile line" is absent.[5] Retained food or liquids may occasionally confuse the picture, but the findings will not be constant. The "profile line" will follow the indentations caused in the stomach outline by neighboring viscera (fig. 3) and extrinsic masses and will also be continued smoothly over extramucosal intramural tumors that have not ulcerated.

Continued experience with this method over a four-year period has convinced us of its usefulness in selected puzzling cases. Its value is limited to those areas of the stomach out of the reach of the palpating finger. It is not a short-cut to diagnosis, nor will it replace present methods of examination, but it should be considered as an extension of them to hitherto relatively inaccessible regions of the stomach.

The greatest use so far has been in the "false positive" cases, in which suspicious deformities have been ironed out or shown to be due to extrinsic masses or other organs rather than intrinsic lesions of the gastric wall.[5]

### SUMMARY

A method of producing controlled intragastric pressure is reviewed. The most useful diagnostic signs found with this method are (1) elasticity, mobility, and motility, (2) mucosal pattern of the stomach (stereoscopic x-rays), and (3) the "profile line." The proper place of this method in gastric diagnosis is briefly discussed.

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5. Pirkey, E. L., and others: Clinical Studies of the Use of Controlled Intragastric Pressure for the Roentgen Diagnosis of Lesions in and About the Fundus of the Stomach, Am. J. Roentgenol., to be published.

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# PUSTULAR MILIARIA

## SWEAT RETENTION PHENOMENON COMPLICATING COMMON DERMATOSES

*Walter C. Lobitz Jr., M.D., Hanover, N. H.*

When the clinician is confronted with an eruption of the skin that is characterized by discrete pustules that are seemingly follicular in origin, he is apt to call it a folliculitis and treat it as a skin infection. A pustular type of inflammatory reaction that is easily confused with folliculitis can also develop in the sweat gland and duct. Such a lesion is not the result of bacterial infection per se but is another manifestation of sweat retention phenomenon. At present we refer to this condition as "pustular miliaria" to distinguish it, in the broad clinical sense, from pustular folliculitis.

### DIAGNOSIS

Pustular miliaria presents certain distinctive signs and symptoms that will alert the clinician to its presence:

1. It is seen most commonly in the summer season when the weather is hot enough to produce sweating; however, it can occur in any season if an occupation, activity, or state of health induces sweating for the regulation of body temperature or sweating caused by emotional stimuli.

2. We have found it more commonly in the adult, although it can occur in any age or sex group.

3. The eruption is always preceded by some other skin damage, which has produced injury, destruction, or blocking to the sweat duct or its orifice (pore). We have observed it associated with contact dermatitis (acute and chronic), urticaria, localized neurodermatitis, intertrigo of obesity, and lichen planus.

4. Although the pustules may occur as a complication during the course of improvement of an inflammatory dermatosis, it is not uncommon to see their onset several weeks after the patient has shown sufficient clinical improvement for discontinuation of therapy.

5. Pruritis is the only symptom of note, and it is always present. The exacerbations and remissions of the pruritus coincide respectively with the presence or absence of sweating.

6. Most commonly the pustules will be found on the flexor surfaces and folds of the extremities, in the groin, in the intergluteal cleft, and, in the male, on the scrotum; however, the pustules can be distributed in any area of the skin that has been previously inflamed and they will always be found only in these previously inflamed areas.

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of the protruded disk and aided in establishing this clinical entity. That the classic protruded intervertebral disk is characterized by two symptoms, namely, backache and sciatic pain, is a well-recognized fact today. However, if one reviews the literature that has accumulated on this subject during the past 17 years, he will realize that the medical profession at large was at first reluctant to accept protruded intervertebral disk as a disease entity. Gradually, however, the pendulum swung the other way, until every patient with low back and leg pain was suspected of having a protruded intervertebral disk until proved otherwise. Laymen are talking today about their "disk protrusions" just as they did years ago about their "sacroiliac strains." One can today read the papers of Key [5] and the late Dr. Dandy [6] and get the idea that with few exceptions low back pain is due to protrusion of an intervertebral disk. In spite of his early skepticism about the diagnosis of a protruded intervertebral disk, Dandy became so convinced that it was the only cause of low back and sciatic pain that he advised against the use of contrast mediums in the diagnosis and advanced his theory of the so-called "concealed intervertebral disk." [6a] Key,[5a] also skeptical at first, recently said that he believed a protruded intervertebral disk is the underlying cause of the distress in all cases of lumbosacral strain postural backache, and sacroiliac strain, because "n other cause has ever been demonstrated." He also sai that "the diagnosis of idiopathic low back pain is n longer a problem because the term is synonymous with lesion of an intervertebral disk in the affected area." [5a]

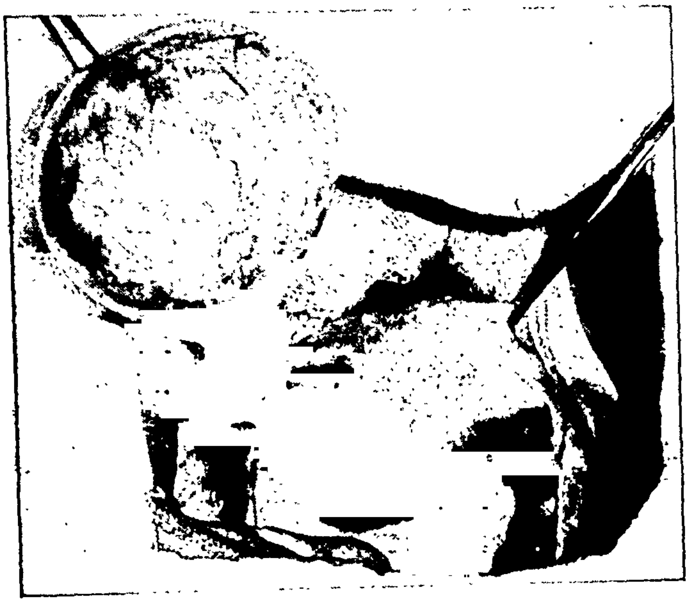

Fig. 3.—Ovarian cyst twisted on its pedicle.

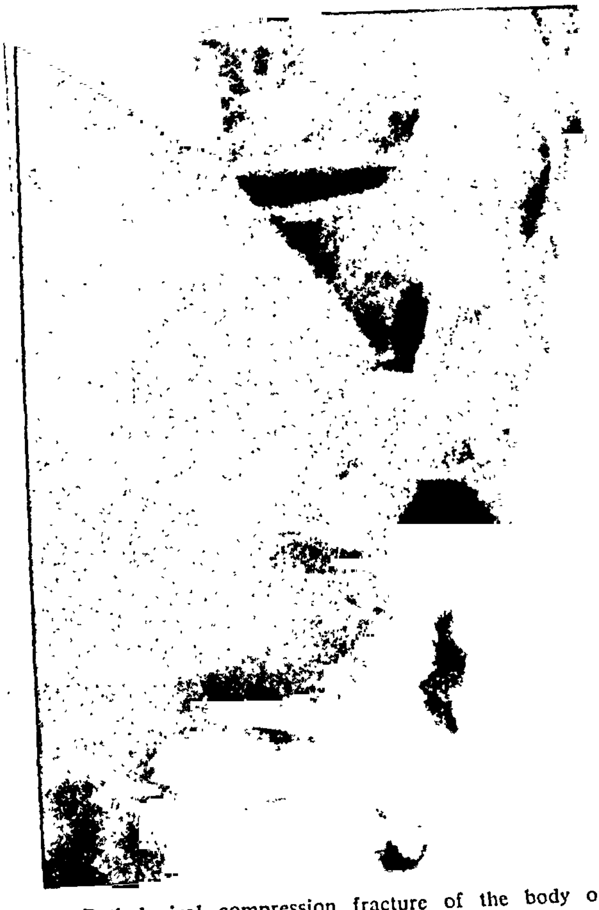

Fig. 4.—Pathological compression fracture of the body of the first lumbar vertebra due to multiple myeloma.

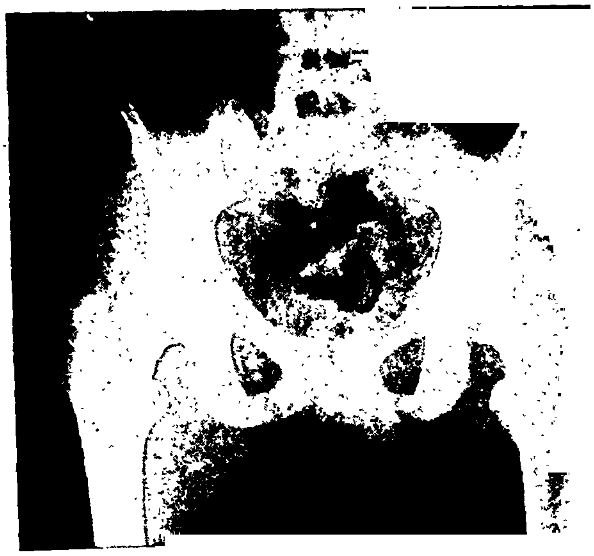

Fig. 5.—Roentgenogram showing an area of sclerosis above the left acetabulum, which later proved to be an eosinophilic granuloma.

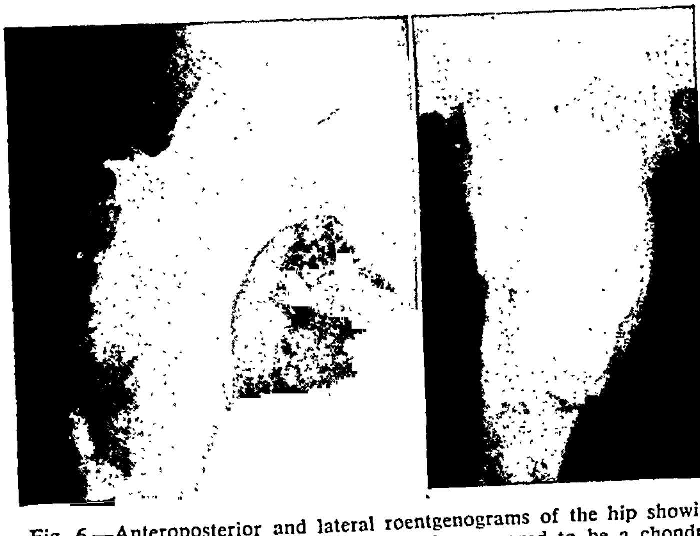

Fig. 6.—Anteroposterior and lateral roentgenograms of the hip showing destructive lesion of the trochanteric area, later proved to be a chondromyxosarcoma.

A few authors have been bold enough to assert them selves against this recent fad of saying that a protrude intervertebral disk is the sole cause of low back and sc atic pain, but apparently their reports have been lost the mass of literature that has accumulated on the su ject. Bankart [7] emphasized the fact that a protrud

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5. (*a*) Key, J. A.: Intervertebral Disk Lesions Are the Most Common Cause of Low Back Pain With or Without Sciatica, Ann. Surg. **121**: 534-544 (April) 1945; (*b*) Idiopathic Low Back Pain and Sciatica: 25 Years Ago and Now, Bull. Johns Hopkins Hosp. **80**: 217-230 (May) 1947.

intervertebral disk is not present in all cases with low back and sciatic pain and cited examples of spinal arthritis, pelvic neoplasms, tuberculous sacroiliac disease, osteoarthritis of the hip, and neuritis as other causes that may produce similar symptoms. Herz[8] and Copeman and Ackerman[9] have reported cases that indicated that herniated fat pads can produce all the signs and symptoms of a protruded disk, and Butler[10] reported cases of a short leg in which the only symptom was backache and sciatic pain.

The purpose of this presentation is to inject a word of caution into the diagnosis of protruded intervertebral disk. In the following cases, a protruded disk was believed, at one time or another, to be the cause of the symptoms. In some of these cases, contrast myelography was used; in others, operation for a protruded intervertebral disk was performed but did not relieve the pain. Needless to say, none of the patients had a protruded intervertebral disk and a more thorough search resulted in an accurate diagnosis of the pathological condition.

## REPORT OF CASES

CASE 1.—A young man, 19, came to the Mayo Clinic because of low back pain and pain in the left leg, which was aggravated by lifting and relieved by flexing the thigh. The symptoms had been present for six years and first had occurred after he had fallen from a bicycle. Coughing had not aggravated his distress, and he had obtained relief only by taking 10 acetylsalicylic acid tablets daily and fortifying this with some whisky. Chiropractic treatments, braces, casts, and physical therapy had failed to alleviate his symptoms. He had quit school, at the age of 15, because of the severity of the pain.

Physical examination revealed slight lumbar scoliosis to the left side and some weakness in the left leg. The circumference of the left thigh and calf was 1 in. (2.5 cm.) less than that of the right thigh and calf. The knee jerk reflex was diminished on the left side. There was some diminution of left perianal sensation and of the abdominal reflexes on the left side. The results of laboratory tests and roentgenographic examination of the thoracic and lumbar vertebrae and the pelvis were within normal limits. The clinical impression was that the patient had either a tumor of the cauda equina or a protruded intervertebral disk.

Air myelography did not disclose any abnormality. The concentration of protein in the spinal fluid was within normal limits. Because the original roentgenograms had not clearly revealed the hip joints, another roentgenogram of the pelvis was made. This revealed a sclerosing osteitis of the upper third of the shaft of the left femur and a central area of rarefaction, a typical osteoid osteoma of the femur (fig. 1).

Excision of the lesion of the femur produced immediate and complete relief of pain. When the patient was seen eight years later, there had been no return of symptoms.

When the patient returned for a check-up two months after the operation, he brought with him a roentgenogram of the entire body that had been made five years previously by a chiropractor. This roentgenogram showed the lesion in the femur quite clearly.

CASE 2.—A man, 23, came to the clinic because of pain in the lower part of the back and in the left leg. Nine years previously, he had helped to lift an automobile and had a sudden attack of low back pain. This pain had persisted for one week and then had disappeared. Five years later, low back pain had started insidiously, and within a year it had extended down the back of the left thigh and lateral side of the left leg. The pain had been continuous and had been aggravated by walking. It had been relieved by rest and the use of heat and acetylsalicylic acid. Coughing had not aggravated the pain, but riding in an automobile had increased the distress. The pain had been worse in the evenings and occasionally had awakened him. Three months before the patient came to the clinic, he had noticed paresthesia in the left foot.

Physical examination revealed that the circumference of the left thigh was 1 in. (2.5 cm.) less than that of the opposite thigh. Straight leg raising was limited 50% on the left and to 25% on the right. Spinal motions were normal. The results of neurological examination were normal.

That someone had suspected the presence of a protruded intervertebral disk was evidenced by the fact that a spinal puncture had been performed on two occasions and myelography with radiopaque oil had been performed once while the patient was in the army. Roentgenograms of the spinal column and pelvis were normal. Roentgenograms of the left femur revealed an area of sclerosis with a central area of rarefaction similar to that observed in case 1. The diagnosis was osteoid osteoma of the femur. A block excision of the lesion was followed by a complete remission of symptoms.

CASE 3.—A woman, 26, came to the clinic because of pain that had been present in the left leg for 13 years. The onset of pain had been gradual and had been associated with a cutaneous hypersensitivity in the popliteal space. The pain had been aggravated by exercise, and the patient gradually had lost the ability to place the left leg forward in going upstairs. Four years before she came to the clinic, she had noted that the left leg was getting smaller in size and that it seemed colder than the right. The pain gradually had extended up the back of the entire left leg; although heat had relieved it to some extent, cold temperatures had increased the severity of the pain.

Examination revealed a limp in the left leg. The patient was unable to go up a step with the left leg foremost. The diameter of the left thigh and calf was 1½ in. (3.8 cm.) less than that of the right thigh and calf. Widespread and extreme tenderness was present in the popliteal region. The results of neurological examination were essentially normal. Roentgenograms of the spinal column and pelvis revealed osteitis in the region of the right sacroiliac joint and narrowing of the lumbosacral joint with some marginal sclerosis. Roentgenograms of the femur were normal.

The presence of a protruded intervertebral disk was suspected, but, because of the extreme popliteal tenderness, the presence of a glomus tumor or a neuroma of the common peroneal nerve was considered. Exploration of the popliteal space was performed with local anesthesia. A large glomus tumor, 2 cm. in diameter, was found lying on the periosteum high in the popliteal fossa (fig. 2). Its removal was followed with complete relief of the symptoms.

CASE 4.—A man, 46, came to the clinic because of lumbosacral and sciatic pain that had been present on the left side for three weeks. He also had had chronic osteomyelitis of the lower third of the right tibia for one year, and an open ulcer, 3 by 10 cm., was situated just above the right internal malleolus. The pain in the left leg had been aggravated by coughing or sneezing or even by deep breathing. Acetylsalicylic acid had relieved the pain.

On physical examination, it was noted that the patient stood with a "list" to the right. The erector spinal muscles were in spasm, and there was a limitation of 50% in all motions of the spinal column. The motions of the hip were normal, and the straight leg-raising test did not disclose any abnormality. The Achilles reflex was absent on the right side, but it was thought that this might be due to the close proximity of the osteomyelitic ulcer.

The possible presence of acute protrusion of an intervertebral disk was considered. However, a roentgenogram of the left femur

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6. (*a*) Dandy, W. E.: Concealed Ruptured Intervertebral Disks: A Plea for the Elimination of Contrast Mediums in Diagnosis, J. A. M. A. **117**: 821-823 (Sept. 6) 1941; (*b*) Treatment of Recurring Attacks of Low Backache Without Sciatica, ibid. **125**: 1175-1178 (Aug. 26) 1944; (*c*) The Treatment of Spondylolisthesis, ibid. **127**: 137-139 (Jan. 20) 1945.

7. Bankart, A. S. B.: Low Back Pain and Sciatica, Practitioner **157**: 367-371 (Nov.) 1946.

8. Herz, R.: Herniation of Subfascial Fat as a Cause of Low Back Pain: Results of Surgical Treatment in Thirty-One Cases, J. Internat. Coll. Surgeons **9**: 339-346 (May-June) 1946; Herniation of Subfascial Fat as Cause of Low Back Pain: Report of 37 Cases Treated Surgically, Ann. Rheumat. Dis. **5**: 201-205 (Dec.) 1946.

9. Copeman, W. S. C., and Ackerman, W. L.: Edema or Herniations of Fat Lobules as a Cause of Lumbar and Gluteal "Fibrositis," Arch. Int. Med. **79**: 22-35 (Jan.) 1947.

10. Butler, J. M.: Short Leg Backache, Journal-Lancet **66**: 10-11 (Jan.) 1946.

### COMMENT

These 10 cases illustrate that no one pathological entity is responsible for all instances of low back and sciatic pain. Probably, as Key [5a] has stated, a large majority of patients with these symptoms have a protruded disk. However, to say that all of these patients have a protruded disk is similar to saying that all patients who have pain in the right upper quadrant of the abdomen have a diseased gallbladder that should be removed. In cases of pain in the right upper quadrant of the abdomen, all available diagnostic procedures are used to determine the underlying lesion that is responsible for the pain. Why not apply the same care in attempting to establish the underlying cause of low back pain and sciatic pain?

By obtaining an accurate history, by making a careful physical examination, and by using all the indicated laboratory procedures that are available, one can arrive at a correct diagnosis of the cause of the symptoms in most cases, and a needless operation sometimes can be prevented. It must be remembered that the lesion responsible for low back pain and pain in the leg is not always situated in the spinal column or spinal canal. One must be prepared to look elsewhere for the lesion causing the distress.

### SUMMARY

Lesions that cause low back pain and pain in the leg are not always situated in the spinal column or spinal canal. In this paper, I have reported 10 cases in which the symptoms closely simulated those caused by protrusion of an intervertebral disk. An osteoid osteoma of the femur was present in four of the cases. One of the following lesions was present in the six remaining cases: glomus tumor of the leg, twisted ovarian cyst, multiple myeloma of the spinal column, eosinophilic granuloma of the pelvis, chondromyxosarcoma of the femur, and tuberculous arthritis of the sacroiliac joint.

In recent years, a diagnosis of protrusion of an intervertebral disk has been made with increasing frequency in cases of low back pain and pain in the leg. In such cases, one can usually make the correct diagnosis by taking an accurate history, by making a careful physical examination, and by using all the indicated laboratory procedures that are available. If physicians will always observe these measures, needless operations often can be prevented.

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# UNNECESSARY OVARIECTOMIES

## STUDY BASED ON REMOVAL OF 704 NORMAL OVARIES FROM 546 PATIENTS

*James C. Doyle, M.D., Beverly Hills, Calif.*

Recently a 31-year-old mother of two children was admitted to a local hospital complaining of lower abdominal pain of one year's duration. The pain was accentuated during the menses and coitus. It had been severer and had occurred more frequently during the three months prior to admittance. Menstruation began at the age of 18 and occurred fairly regularly every 28 days with periods lasting 2 to 15 days. The patient had been married seven years. Both her pregnancies had been normal, and the children were 7 and 4 years old. Her family history was not significant except for the death of her brother of melanosarcoma at the age of 34. According to her physician, the only abnormality observed at physical examination was a tender mass in the right adnexal area; the uterus was of normal size, shape, and position, and cervical manipulation caused no particular discomfort. The clinical diagnosis was recorded as right ovarian cyst with possible endometriosis. Bilateral salpingo-ovariectomy and subtotal hysterectomy were performed. The postoperative diagnosis was recorded as endometriosis; the operative report stated that there were bilateral chocolate cysts and that rupture on the right side occurred during removal. The microscopic diagnosis, however, was follicular cyst of one ovary and corpus hemorrhagicum of the other; the uterus and the oviducts were described as grossly and microscopically normal. Convalescence was uneventful. The patient left the hospital on the fifth postoperative day.

It would be prolix to analyze this case. Omission of thorough study for an adequate period seems obvious, as does error of judgment in removal of normal ovaries. Indeed, this ovariectomy signifies lack of knowledge of ovarian physiology.

Many hospital administrators, clinicians, and pathologists are concerned about unnecessary operations. The particular concern of this paper is the unwarranted sacrifice of normal ovaries. The case cited is not at all unusual, as demonstrated by the statistics presented here. Countless articles have appeared relating to lesions of the ovary, their nature, their incidence, and their removal, but little attention has been given to removal of normal ovaries. Reports of large numbers of such cases have not been found. I have been impressed, while working on another project, by the seemingly excessive number of normal ovaries removed at the time of other gynecologic operations.

These data in 546 cases involving removal of 704 normal ovaries were selected from the 1948 surgical reports of various private hospitals in Los Angeles and adjacent cities. The study is one aspect of a survey on hysterectomies, which will be reported later. Not only unilateral or bilateral ovariectomy of histologically normal structures but also hysterectomy was done in every case. A

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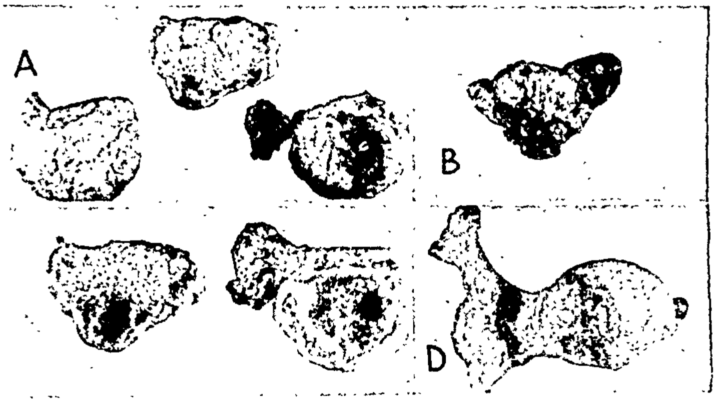
From the Department of Gynecology, University of Southern California School of Medicine.

Read at the Fifth Clinical Session of the American Medical Association, Los Angeles, Dec. 5, 1951.

C. Ahern, R.N., and Drs. D. Badley, S. Benson, S. Brien, J. B. Brown, J. A. Case, D. Hewitt, G. G. Lancaster, E. D. Langston Jr., E. Larrson, G. A. Macer, W. Moe, H. Neibergall, H. E. Peterson, S. Pillsbury, D. Richards, F. L. Scott, and R. L. Taw collected the data from hospital records for 1948 in Los Angeles and nearby cities.

critical review of ovariectomies should consider the associated pathological gynecologic conditions; these cases were selected with exacting consideration of such lesions. From the total number of ovaries removed in cases recorded during the survey, those in the following categories were excluded: abnormal ovaries, normal ovaries associated with carcinoma of the uterus, of an oviduct, or of the other ovary; ovaries with simple cysts, some of which could have been follicular in type but for which confirmatory etiologic evidence was lacking; and ovaries associated with pelvic inflammatory disease. Ovaries removed in the presence of endometriosis presented a difficult decision: Normal ovaries associated with extensive endometriosis were not included, but we did include normal ovaries removed in association with "clinical" endometriosis or endometriosis limited to the other ovary.

Of the 704 removed ovaries 336 (47.7%) had no cyctic formation and were reported as normal. Of the normal variations, 137 (19.4%) were follicular cysts, 123 (17.5%) were corpus luteum cysts, and 90 (12.8%) were examples of corpus hemorrhagicum. Fourteen (1.9%) were of the senile, atrophic, sclerotic, or fibrotic type, and 4 were retention or inclusion cysts (0.6%). The figure illustrates examples of normal ovaries and of physiologic variations of normal ovaries.



Examples of normal ovaries and normal physiological variations. *A*, three normal ovaries. *B*, an example of corpus hemorrhagicum. *C*, two specimens of corpus luteum, which is a normal physiological variation. *D*, an ovary with a large follicular cyst and a small corpus hemorrhagicum, both of which are normal variations.

*Age of Patients.*—Among the younger patients (table 1), the greatest number of ovaries (230) were removed in patients from 40 to 45 years of age; this was to be expected. In the group aged 30 to 39 177 normal ovaries were removed, and 56 were removed in patients in the very early age bracket of 20 to 29. Thus, from 375 patients between 20 and 45 years of age, 463 ovaries were excised. Bilateral ovariectomy was done in 88 instances, and unilateral ovariectomy in 287. In the 171 patients more than 45 years old (table 2) ovariectomy was done unilaterally in 101, and bilaterally in 70.

The routine removal of ovaries during other gynecologic operations as a prophylactic or preventive measure against future development of cancer of these organs has been advocated by certain physicians. Some proponents of this view suggest the late 30's or early 40's as the ages at which removal should be considered; more favor 45 as the earliest age for elective ovariectomy, while a greater number recommend that the patient be at least 50 years old. Now and then a physician recommends that prophylactic ovariectomy should not be done at any age. In support of this conservative attitude the rarity of development of cancer of the ovaries following hysterectomy and the low incidence of ovarian cancer after the age of 50 are cited. It would seem difficult to apply any hard and fast rule to the decision. I certainly would not subscribe to prophylactic ovariectomy before the age of 45, since many women have normally functioning ovaries well into the 50's. However, if it is desirable that an arbitrary line be drawn, I should be inclined to place it at the age of 50.

Whether lack of appreciation of ovarian physiology or consideration of prophylactic removal (publicized so widely as a measure of cancer prevention) contributed to the decisions to do so many ovariectomies would be hard to surmise. The incidence of bilateral removal may be significant, however. In the patients less than 46 years of age, bilateral removal was done in 23.4% (88 of 375 cases), *while in the women aged 46 or more*, it was done in 40.9% (70 of 170 cases). In the older group, the difference between the incidence of bilateral ovariectomy in patients aged 46 to 49 (31.2%) and that in those aged 50 or more (53.3%) is rather striking. But look at the figures in another way: In the 46 to 49 year group 66 ovariectomies were unilateral and 30 were bilateral, but in the 50 years or more group 35 were unilateral and only 40 bilateral. I doubt that this would be considered a trend toward prophylactic removal.

*Symptomatic Considerations.*—The symptoms presented preoperatively by these patients whose ovaries were removed are listed in table 3. Symptomatic considerations conceivably could be offered as justification for removal of normal ovaries. It would be difficult, in a survey of this kind, to correlate the symptoms that are purely ovarian in origin. Since normal ovaries were removed, it is felt that causes for the complaints presented must be extra-ovarian in the great majority of instances. Normal ovaries, follicular and corpus luteum cysts, and corpus hemorrhagicum seldom produce symptoms. A few exceptions, rarely encountered, are as follows: Pain in the lower abdomen associated with ovulation (*mittelschmerz*) can occur in the absence of a pathological condition. Occasionally a large, heavy, but still normal, ovary may be prolapsed into the cul-de-sac, thereby causing dyspareunia. Excessive intra-abdominal hemorrhage may occur as the result of rupture of a follicular or corpus luteum cyst or of a corpus hemorrhagicum. A corpus luteum cyst may persist, the "corpus luteum persistens," resulting in amenorrhea. Even true cysts and the majority of neoplasms are silent except in the presence of complications such as incarceration or torsion of the pedicle.

In gynecologic practice the two commonest symptoms for which patients consult their physicians are bleeding and pain. Bleeding was the complaint of 461 patients (84.4%). It was the only complaint of 75 (13.7%) who were subjected to ovariectomy. Abdominal or pelvic pain was present in 247 patients (45.2%); in 66 (10.9%) of these, it was the only complaint recorded. Dysmenorrhea was recorded for 63 (11.5%) and backache for 52 (9.3%).

The cause of pain is one of the most elusive and most difficult of diagnoses. Conditions other than gynecologic disorders that produce pain in the pelvic region should be kept in mind, such as lesions of the urinary tract, the colon, and the appendix, diverticulitis, and conditions affecting the back, as spondylolisthesis, sacroiliac disease, and radiculitis. One should be aware, also, of clinical entities resulting from states of stress, strain, and tension, and be alert to recognize the constitutionally inadequate patient.

Eighteen patients (3.2%) told their physicians they had a "tumor"; many undoubtedly had been informed of the presence of a tumor at previous examinations, but some were asymptomatic and, in a few instances, the diagnosis was not substantiated. No symptoms at all were recorded in 47 (8.6%) of the case histories.

TABLE 1.—*Unilateral and Bilateral Ovariectomies in Patients Aged Twenty to Forty-Five*

| | Age 20 to 29 | | | Age 30 to 39 | | | Age 40 to 45 | | | Total (Age 20 to 45) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Ovaries | | | Ovaries | | | Ovaries | | | Ovaries | | | |
| Normal Variations of Removed Ovaries | One | Both | No. Pts. | One | Both | No. Pts. | One | Both | No. Pts. | One | Both | No. Pts. | %* |
| Normal | 8 | 8 | 16 | 30 | 15 | 45 | 29 | 37 | 66 | 67 | 60 | 127 | 40.4 |
| Follicular cyst | 10 | 1 | 11 | 30 | 8 | 38 | 37 | 4 | 41 | 77 | 13 | 100 | 22.3 |
| Corpus luteum cyst | 6 | 1 | 7 | 41 | 2 | 43 | 39 | 1 | 40 | 86 | 4 | 90 | 20.3 |
| Corpus hemorrhagicum | 9 | 1 | 10 | 17 | 4 | 21 | 26 | 5 | 31 | 52 | 10 | 62 | 15.5 |
| Senile, atrophic, sclerotic, fibrotic | 1 | .. | 1 | 1 | .. | 1 | 1 | 1 | 2 | 3 | 1 | 4 | 1.1 |
| Retention, inclusion cyst | .. | .. | .. | .. | .. | .. | 2 | .. | 2 | 2 | .. | 2 | 0.4 |
| Total | 34 | 11 | 45 | 119 | 29 | 148 | 134 | 48 | 162 | 287 | 88 | 375 | 100.0 |
| No. of ovaries | 56 | | | 177 | | | 230 | | | 463 | | | |

* Incidence of removal of each type of ovary in relation to total number of ovaries (463) removed in patients aged 20 to 45.

TABLE 2.—*Unilateral and Bilateral Ovariectomies in Patients Aged Forty-Six Years or More*

| | Age 46 to 49 | | | Age 50 or More | | | Total (Age 46 or More) | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Ovaries | | | Ovaries | | | Ovaries | | | |
| Normal Variations of Removed Ovaries | One | Both | Number of Patients | One | Both | Number of Patients | One | Both | Number of Patients | %* |
| Normal | 14 | 25 | 39 | 17 | 34 | 51 | 31 | 59 | 90 | 61.9 |
| Follicular cyst | 18 | 2 | 20 | 8 | 2 | 10 | 26 | 4 | 30 | 14.1 |
| Corpus luteum cyst | 19 | 2 | 21 | 4 | 1 | 5 | 23 | 3 | 26 | 12.0 |
| Corpus hemorrhagicum | 11 | 1 | 12 | 5 | .. | 5 | 16 | 1 | 17 | 7.5 |
| Senile, atrophic, sclerotic, fibrotic | 2 | .. | 2 | 1 | 3 | 4 | 3 | 3 | 6 | 3.7 |
| Retention, inclusion cyst | 2 | .. | 2 | .. | .. | .. | 2 | .. | 2 | 0.8 |
| Total | 66 | 30 | 96 | 35 | 40 | 75 | 101 | 70 | 171 | 100.0 |
| Number of ovaries | 126 | | | 115 | | | 241 | | | |

* Incidence of removal of each type of ovary in relation to total number of ovaries (241) removed in patients aged 46 years or more.

Many of the operations in these cases could, of course, have been deemed advisable on the basis of asymptomatic lesions discovered during routine pelvic examination.

*Preoperative Diagnoses.*—The physician's observations at pelvic examination and/or the clinical preoperative impression are recorded in table 4. The preoperative diagnosis of fibroids and of inflammatory disease involving the adnexae vie for first place in frequency in certain localities, generally areas served by charity and semicharity hospitals. In private hospital statistics, however, after fibroids, endometriosis and adenomyosis take precedence in most instances. Thus it would seem that the preoperative diagnosis of ovarian cyst as second in frequency (20.5%) is rather unusual. That the accuracy of such a preoperative diagnosis in so many cases may be questioned is substantiated in the analysis of pathological diagnoses.

In only 7 of the 546 cases (1.2%) was a preoperative diagnosis omitted. But in inspecting this list of so-called reasons for surgical intervention, evidence of doubt and indecision from a diagnostic viewpoint is obvious. It will be noted that dysmenorrhea, anemia, and vaginal bleeding, which truly should be regarded as symptoms, were recorded in the case histories as preoperative diagnoses. There were 23 cases in these three categories, and if to these are added the 16 instances of adhesions that, with the possible exception of those causing intestinal obstruction, rarely are surgical indications, there were 39 (6.9%) nebulous diagnoses.

*Associated Pathological Conditions.*—The gross and histopathological description of organs and tissues removed in addition to normal ovaries (tables 1 and 2) are given in table 5. The incidence listed refers to the number of times each diagnosis was made in the total series of 546 cases; however, more than one diagnosis was recorded in some cases. Multiple anatomic diagnoses often appear on the pathologist's reports, especially in gynecologic conditions.

In 85 case histories (15.5% of the total) no pathological condition of associated structures was recorded, or, to be more precise, normal ovaries were removed in the absence of other pathological conditions that might have been offered as indications for the ovariectories. Another revealing figure is the incidence of clinical endometriosis, 26 cases (4.7%). This may be explainable by the following possibilities: The history may have been suggestive, gross evidence of ectopic endometrial implants may have been observed at the time of operation, or a biopsy submitted for study that could not be identified specifically as endometriosis was entere such on the report, thereby extending benefit of the surgeon. A point not brought out in the table (the extent of data available in the survey has prohibited complete tabulation of detail) that warrants recording as evidence of mismanagement or misunderstanding of ovarian physiology concerns the ages of the patients in whom normal ovaries were removed in the presence of "clinical" endometriosis alone. Six of these women were in their 20's, 7 were in their 30's, and 12 were in the group aged 40 to 45. In each of these patients one or both ovaries and the uterus were removed. There would seem little justification for this sacrifice of endocrine and reproductive function in the absence of any lesion other than ectopic endometriosis.

Equally questionable are ovariectomies in the presence of only adhesions, atrophic endometrium, or endometritis. Thus a total of 60 patients (10.9%) had only clinical endometriosis, adhesions, atrophic endometrium, or endometritis as the associated lesions to account for the removal of normal ovaries. There were seven patients (1.2%) in whom pregnancy or the retention of products of pregnancy was the only associated condition; additional observation and more conservative medical

TABLE 3.—*Symptoms Before Ovariectomy*

| Symptoms | Age | | | | | Total No. | | %* | |
|---|---|---|---|---|---|---|---|---|---|
| | 20-29 | 30-39 | 40-45 | 46-50 | Over 50 | | | | |
| Bleeding: | | | | | | | | | |
| Menorrhagia | 12 | 52 | 77 | 41 | 17 | 199 | | 36.4 | |
| Metrorrhagia | 7 | 31 | 46 | 23 | 15 | 122 | | 22.3 | |
| Irregular menses | 6 | 20 | 14 | 12 | 4 | 56 | | 10.2 | |
| Vaginal | 1 | 7 | 25 | 15 | 5 | 53 | | 9.7 | |
| Postmenopausal | .. | .. | 3 | 8 | 20 | 31 | 461 | 5.6 | 84.4 |
| Pain: | | | | | | | | | |
| Lower abdomen | 12 | 38 | 33 | 14 | 3 | 100 | | 18.3 | |
| Pelvis | 6 | 21 | 26 | 16 | 13 | 82 | | 15.0 | |
| Right lower quadrant | 4 | 12 | 10 | 7 | 3 | 36 | | 6.4 | |
| *Left lower quadrant* | *9* | *12* | *6* | *2* | .. | 29 | 247 | 5.3 | 45.2 |
| Dysmenorrhea | 10 | 20 | 22 | 10 | 1 | - | 63 | | 11.5 |
| Backache | 3 | 17 | 19 | 10 | 3 | | 52 | | 9.3 |
| *No symptoms* | .. | 12 | 19 | 7 | 9 | | 47 | | 8.6 |
| Feeling of pressure and/or weight in abdomen, pelvis, or bladder | .. | 12 | 15 | 11 | 9 | | 47 | | 8.6 |
| Vaginal discharge | 5 | 12 | 5 | 1 | 1 | | 24 | | 4.3 |
| Mass in: | | | | | | | | | |
| Pelvis | .. | .. | 5 | 4 | 4 | 13 | | 2.4 | |
| Abdomen | 1 | 2 | 2 | 1 | .. | 6 | | 1.1 | |
| Vagina | .. | 1 | .. | 1 | .. | 2 | 21 | 0.3 | 3.8 |
| Feeling of bearing down and/or prolapse | .. | 4 | 5 | 5 | 4 | | 18 | | 3.2 |
| Tumor | .. | 7 | 7 | 4 | .. | | 18 | | 3.2 |
| Swelling of abdomen | 3 | 4 | 8 | 1 | .. | | 16 | | 2.9 |
| Frequency, nocturia, dysuria and/or stress incontinence | .. | 4 | 3 | 3 | 5 | | 15 | | 2.7 |
| Dyspareunia | 2 | 5 | 5 | .. | .. | | 12 | | 2.1 |
| Nausea, fatigue, dizziness | 3 | 1 | 2 | 1 | 1 | | 8 | | 1.4 |
| Infertility or sterility | .. | 3 | .. | .. | .. | | 3 | | 0.5 |
| Amenorrhea | .. | 1 | 1 | 1 | .. | | 3 | | 0.5 |

* Incidence in 546 cases. Some patients complained of more than one symptom.

TABLE 4.—*Physicians' Diagnoses Before Ovariectomies*

| | Age | | | | | Total No. | %* |
|---|---|---|---|---|---|---|---|
| | 20-29 | 30-39 | 40-45 | 46-50 | Over 50 | | |
| Fibroids | 6 | 59 | 131 | 79 | 34 | 309 | 56.5 |
| Ovarian cysts | 16 | 45 | 35 | 12 | 4 | 112 | 20.5 |
| Chronic cervicitis | 1 | 21 | 10 | 8 | 4 | 44 | 8.0 |
| Endometriosis | 7 | 17 | 14 | 1 | .. | 39 | 7.1 |
| Salpingitis | 13 | 15 | 7 | 3 | .. | 38 | 6.9 |
| Rectocele | 1 | 7 | 16 | 9 | 2 | 35 | 6.4 |
| Carcinoma (fundal 26) | .. | 1 | 6 | 6 | 15 | 28 | 5.1 |
| Retroposition of uterus | 3 | 10 | 6 | 4 | .. | 23 | 4.2 |
| Adnexal mass or tumor | 4 | 10 | 2 | 3 | 4 | 23 | 4.2 |
| Uterine prolapse | .. | 4 | 5 | 8 | 5 | 22 | 4.0 |
| Fibrosis of uterus | .. | 7 | 7 | 3 | 1 | 18 | 3.2 |
| Cystocele | .. | 6 | 6 | 4 | 2 | 18 | 3.2 |
| Polyps | .. | 5 | .. | 5 | 7 | 17 | 3.1 |
| Adenomyosis | 4 | 6 | 4 | 2 | .. | 16 | 2.9 |
| Adhesions | 2 | 8 | 3 | 3 | .. | 16 | 2.9 |
| Vaginal bleeding | 2 | 4 | 3 | 2 | 2 | 13 | 2.3 |
| Functional bleeding | 3 | 3 | 4 | 2 | .. | 12 | 2.1 |
| No diagnosis | .. | 3 | 2 | 1 | 1 | 7 | 1.2 |
| Anemia | .. | 1 | 2 | 2 | 1 | 6 | 1.0 |
| Endometrial hyperplasia | .. | 2 | 1 | 2 | .. | 5 | 0.8 |
| Dysmenorrhea | .. | 2 | 1 | 1 | .. | 4 | 0.7 |
| Ectopic pregnancy | .. | 1 | 1 | 1 | .. | 3 | 0.5 |

* Incidence in 546 cases. More than one diagnosis was recorded in some instances.

care would seem preferable to ovariectomy in such cases. In 62 instances polyps (11.3%) and in 60 endometrial hyperplasia (10.9%) were accompanying diagnoses. These two conditions not infrequently are the cause of menstrual aberrations, but they should be treated by such minor procedures as curettage as the first step, with definitive surgical intervention reserved for failure to respond.

Ovaries are removed unnecessarily all too frequently in pelvic inflammatory disease. Many physicians unquestionably are concerned about the future ovarian blood supply. The ovary, however, is known to be innately resistant to infection. Oftener than not the infection is limited to the periphery and the ovary returns to its normal state shortly after extirpation of the infected oviducts and the entire uterus. Unfortunately, some physicians view the problem from the standpoints of conservation of time and facility of removal, which are often neither tenable nor logical. Surgical intervention, nevertheless, is necessary at times. The advent of hormone therapy seems to have engendered an attitude of decreased concern with ovarian conservation. This tendency to remove organs that could continue to function normally, it is felt, is to be deplored.

TABLE 5.—*Associated Conditions in Patients Subjected to Ovariectomies*

| | Age | | | | | | |
|---|---|---|---|---|---|---|---|
| | 20-29 | 30-39 | 40-45 | 46-50 | Over 50 | Total No. | % * |
| Fibroids | 7 | 51 | 92 | 68 | 41 | 259 | 47.4 |
| Chronic cervicitis | 5 | 24 | 35 | 18 | 11 | 93 | 17.0 |
| No pathological condition | 12 | 35 | 24 | 6 | 8 | 85 | 15.5 |
| Adenomyosis | 1 | 10 | 29 | 12 | 15 | 67 | 12.2 |
| Polyps, fundal and cervical | 2 | 10 | 22 | 22 | 6 | 62 | 11.3 |
| Endometrial hyperplasia | 3 | 17 | 17 | 13 | 10 | 60 | 10.9 |
| Salpingitis | 7 | 13 | 15 | 8 | 3 | 46 | 8.4 |
| Chronic metritis | 2 | 16 | 10 | 8 | 5 | 41 | 7.5 |
| Endometriosis, clilnical | 6 | 7 | 12 | .. | 1 | 26 | 4.7 |
| Adhesions | 3 | 8 | 6 | 1 | .. | 18 | 3.2 |
| Fibrosis of uterus | 1 | 7 | 5 | 4 | .. | 17 | 3.1 |
| Atrophic endometrium | 1 | 1 | 3 | 2 | 4 | 11 | 2.0 |
| Cystadenomas, benign: pseudomucinous, serous, papillary | 1 | 1 | 5 | 2 | 1 | 10 | 1.8 |
| Endometriosis of ovary or oviduct | 2 | 2 | 3 | 1 | 1 | 9 | 1.6 |
| Pregnancy or retained products | 3 | 2 | 2 | .. | .. | 7 | 1.2 |
| Uterus, prolapsed | .. | 1 | 1 | 1 | 2 | 5 | 0.8 |
| Endometritis | 1 | 2 | .. | .. | 2 | 5 | 0.8 |
| Appendicitis | .. | 1 | 2 | .. | 2 | 5 | 0.8 |
| Ectopic pregnancy | .. | 3 | 1 | .. | .. | 4 | 0.7 |
| Hypertrophy of uterus | .. | 4 | .. | .. | .. | 4 | 0.7 |
| Chocolate cyst | .. | .. | 2 | .. | 1 | 3 | 0.5 |
| Dermoid | 1 | 1 | .. | .. | .. | 2 | 0.3 |
| Granulosa cell, ovary | .. | 1 | .. | .. | 1 | 2 | 0.3 |
| Theca cell, ovary | .. | .. | 1 | .. | 1 | 2 | 0.3 |
| Fibroma, ovary | .. | .. | 1 | .. | 1 | 2 | 0.3 |
| Brenner tumor, ovary | .. | .. | .. | .. | 1 | 1 | 0.1 |

* Incidence in 516 cases. More than one diagnosis was recorded in some cases.

Preoperatively ovarian cyst was diagnosed in 112 cases. The pathological reports record only 22 cases of actual ovarian cysts and 9 instances of ovarian or tubal endometriosis, some of which may have suggested the presence of an ovarian cyst. This accounts for only 31 lesions to substantiate the 112 preoperative diagnoses. Oftentimes such diagnostic error could be obviated by preexamination enemas and catheterizations of the bladder, and by rechecking at intervals.

Before concluding this section dealing with pathological diagnoses, I feel it might be in order to comment on the wording of pathological reports. The point has significance in the study when the question of which ovaries are normal and which are abnormal or diseased is considered. When the pathological report describes a removed ovary as a follicular cyst, a corpus luteum cyst, a hemorrhagic cyst (corpus hemorrhagicum), or as senile or atrophic, without indicating that these are physiological variations of the normal organ, the report undoubtedly appeases the conscience of the surgeon. Would it not be preferable that all pathologists insert the words "normal ovary, normal oviduct, or normal uterus" in addition to the precise anatomic or anatomic-physiological description when such is the fact? The adoption of such a policy could conceivably serve as a deterrent to the persistence of some of the surgical evils known to exist today.

*Classification of Physicians.*—In some hospitals most surgical procedures of the type discussed here are performed by general practitioners, while in others most are performed by general surgeons. Rarely is the specialist responsible for the majority of gynecologic operations in any one hospital. In the cases analyzed here collaboration between the various physicians was indicated in some instances: a general practitioner collaborated with a general surgeon, or a general practitioner with a specialist. The majority of these operations (280 cases or 51.3%) were performed by general surgeons, while 156 (28.6%) were done by general practitioners and 110 (20.1%) by specialists.

*Illustrative Cases.*—Table 6 illustrates well the theme of this discussion, mismanagement and/or unnecessary removal of ovaries. These 15 patients were between the ages of 22 and 33. Three had no pathological lesions or relaxations (cases 1, 11, and 13), and two had no gynecologic symptoms (cases 10 and 14). In 12 (80%) the preoperative diagnosis was not substantiated. One ovary was removed in seven cases, and in the other eight both ovaries were removed; in all 15 a hysterectomy was done.

In 7 of the 15 cases less definitive measures, such as medical management and observation, cervical biopsies, curettage, and cervical cauterization, would have sufficed (cases 6, 7, 9, 10, 11, 12 and 13). Far too often a normal ovary is sacrificed along with a tubal pregnancy. The rationale for bilateral ovariectomy is perplexing in cases 4 and 5, particularly since the patients were but 28 and 23 years old, and the pelvic organs were otherwise normal.

Although this discussion pertains primarily to indications for ovariectomy, the problem cannot be dissociated in the presence of endometriosis. The case described at the beginning of the paper and cases 2, 9, and 15 (table 6) demonstrate clearly the urgent need for a greater understanding than now exists of the basic factors in regard to endometriosis, especially the pathological and therapeutic aspects. A decade or more ago less conservative surgical treatment of endometriosis was not uncommon. The attitude of many gynecologists, however, is preservation of endocrine and reproductive function whenever possible, particularly in younger patients in whom the process is not too extensive. But when bilateral ovarian destruction and/or adjacent sigmoidal or rectal invasion is encountered, conservatism is not always feasible or possible. The endometrial cyst in case 2 and the dermoid cyst in case 8 should have been treated by unilateral ovariectomy, thus preserving the other normal ovary in each instance. In cases 9 and 15 observation and conservative therapy would seem more logical than bilateral ovariectomy, but if, after a reasonable trial of conservative treatment, the symptoms were not relieved, a presacral neurectomy rather than the ablative procedure might have solved the problem satisfactorily.

One final comment in regard to this table concerns case 3, in which a normal ovary with a corpus luteum cyst was removed along with a pregnant uterus; the preoperative diagnosis was endometrial cyst and adenomyosis. Occasionally an embarrassing situation arises when the physician has been misled by the patient, innocently or intentionally, in a desperate effort to circumvent her pregnancy. The results of the hormone pregnancy test may be misleading also; too much reliance should not be placed on such tests. Moreover, the existence of a pregnancy may be overshadowed by the presence of fibroids.

TABLE 6.—*Examples of Mismanagement and/or Unnecessary Ovarian Sacrifice*

| Case | Age | Operation * | Classification of Physician † | Ovaries | Associated Conditions | Symptoms ‡ | Preoperative Diagnosis |
|---|---|---|---|---|---|---|---|
| 1 | 28 | Salp-ooph | G. S. | Follicular cyst | None | Pain, L.L.Q. | Ovarian cyst |
| 2 | 30 | Salp-ooph, bilateral | G. S. | Normal<br>Endometrial cyst | None | Pain, lower abdomen<br>Dysmenorrhea | Pelvic adhesions |
| 3 | 24 | Salp-ooph | G. P. | Corpus luteum cyst | Pregnant uterus | Dysmenorrhea<br>Irregular menses<br>Dyspareunia | Endometrial cyst<br>Adenomyosis |
| 4 | 28 | Salp-ooph, bilateral | G. S. | Normal<br>Corpus luteum cyst | Ectopic pregnancy, ruptured | Pain, R.L.Q.<br>Vaginal spotting | Ectopic pregnancy, ruptured |
| 5 | 23 | Salp-ooph, bilateral | Sp. | Normal<br>Corpus luteum of pregnancy | Ectopic pregnancy, oviducal | Pain, lower abdomen<br>Irregular menses | Ectopic pregnancy |
| 6 | 28 | Salp-ooph | Sp. | Corpus hemorrhagicum | Polyp, fundal | Pain, R.L.Q.<br>Dysmenorrhea | Retroposition |
| 7 | 31 | Salp-ooph | G. P. | Corpus luteum of pregnancy | Uterus with placental tissue | Pain, pelvic<br>Menorrhagia<br>Metrorrhagia | Ovarian cyst |
| 8 | 22 | Salp-ooph, bilateral | G. P. | Follicular cyst<br>Dermoid cyst | None | Swelling, abdomen<br>Pressure, lower abdomen | Ovarian cyst |
| 9 | 23 | Salp-ooph, bilateral | Sp. | Corpus hemorrhagicum bilateral | Endometriosis, clinical | Pain, pelvic<br>Menorrhagia<br>Metrorrhagia | Salpingitis |
| 10 | 32 | Salp-ooph, bilateral | G. P. | Follicular cyst, bilateral | Endometrial hyperplasia<br>Chronic metritis | None | Fibroids<br>Chronic cystic cervicitis |
| 11 | 33 | Salpingec., bilateral<br>Ovariectomy | G. S. | Corpus luteum cyst | None | Pain, lower abdomen<br>Metrorrhagia<br>Frequency | Chronic salpingitis |
| 12 | 30 | Salp-ooph, bilateral | G. P. | Follicular cyst<br>Corpus luteum cyst | Chronic cervicitis | Pain, R.L.Q.<br>Dysmenorrhea<br>Vaginal discharge | Ovarian cyst<br>Endometriosis<br>Salpingitis |
| 13 | 22 | Salp-ooph | G. S. | Corpus luteum cyst | None | Pain, R.L.Q.<br>Vaginal discharge<br>Irregular menses | Tubo-ovarian cyst |
| 14 | 25 | Salp-ooph, bilateral | G. S. | Normal, bilateral | Chronic cervicitis<br>Fibroids, small | Eye trouble | Salpingitis |
| 15 | 32 | Ovariectomy | G. S. | Corpus luteum cyst | Adenomyosis | Pain, pelvic<br>Pressure, pelvic | Ovarian cyst |

* Salp-ooph = removal of ovary and oviduct. Hysterectomy also was done in each instance.
† G. S. = general surgeon; G. P. = general practitioner; Sp. = specialist.
‡ R.L.Q. = right lower quadrant; L.L.Q. = left lower quadrant.

## AVOIDANCE OF DIAGNOSTIC ERRORS

Most diagnostic errors are the result of either haste or indecision. Such mistakes can be avoided by observing the principles essential to accurate gynecologic diagnosis. Diligence and sound judgment must be exercised. There must be meticulous elicitation of the history and complete physical examination, including a thorough and careful inspection of the pelvis, correlated with results of such laboratory tests and procedures as are indicated. Ovarian disease, particularly, may often be confirmed or eliminated by certain adjunctive measures such as preexamination enemas and catheterizations of the bladder. There are few instances in which haste is actually essential. One should check and recheck the diagnosis at intervals, even by examination with the patient under anesthesia, before deciding that surgical intervention is warranted.

The women of America seek reassurance primarily in regard to cancer, real or imaginary. The light of public opinion shines brightly today on the achievements of medical science. There is especial interest in gynecologic operations. This attitude has been brought about by the educational programs of medical societies and other organizations, by articles in the press and in women's periodicals, and by radio and television programs. Our patients' faith and trust will be justified so long as we are professionally and intellectually honest with both them and ourselves. It is but a decade or two ago that patients visited the physician only as a last resort, and frequently in the terminal stages of disease. Today more and more patients seek examination periodically. The periodic examination is futile unless incipient conditions are detected early and the proper therapy is recommended promptly when a correct diagnosis has been made. The responsibility to their patients in this regard is exceedingly great for both the general practitioner and the general surgeon, who are consulted earlier and oftener than the specialist.

SUMMARY

A survey of 546 gynecologic operations with removal of 704 normal ovaries is reported. These data were collected from hospital records for 1948 in Los Angeles and adjacent cities. Comparative statistics are presented on the ages of the patients and their complaints, preoperative observations and diagnoses, the normal variations of the ovaries removed, the associated lesions, and a classification of the physicians performing the operations. Illustrative cases are tabulated. The statistics are discussed and comment is made on typical cases. The purpose of the paper is to call attention to the unwarranted sacrifice of normal ovaries.

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# REEVALUATION OF COMMON UTERINE OPERATIONS

*Stuart Abel, M.D., Chicago*

It is not an unusual experience for anyone engaged in the practice of a medical specialty to encounter a patient who, in the light of current therapeutic standards, has received some inadequate, obsolete, or unnecessary treatment. For the gynecologist, some of whose therapeutic concepts have recently changed materially, such an experience is common.

Our attitude toward hysterectomy when the chief function of the uterus has been completed in women near or in the climacteric age has changed. Removal of the uterus in these patients is practiced more readily today. The advent of cytologic smears, the trend toward vaginal hysterectomy, and the change in our attitude toward uncomplicated uterine retrodisplacement are also among the factors that have modified the therapeutic perspective with regard to uterine procedures.

Because this therapeutic perspective is so rapidly changing and because such change is reflected in the choice of therapeutic procedures, a reevaluation of some of the commoner procedures on the uterus seems indicated.

## CERVIX

1. *Cauterization and Conization.*—Electrocauterization of an erosion of the vaginal portion of the cervix or of the endocervix in cases of endocervicitis is indicated in most cases because of the mucoid or mucopurulent discharge that is present. In every case such treatment is prefaced with a careful cytologic study of the cervical smear and with biopsy of any areas that might excite suspicion of cancer. After a negative cytologic and/or pathologic report, the electrocautery is employed in the office to eradicate the area of erosion on the pars vaginalis. While it is possible in some instances to introduce the electrocautery tip into the cervical canal in the treatment of endocervicitis, it is often more satisfactory to perform this procedure after adequate dilation of the cervix under thiopental anesthesia. Thorough dilation of the cervix allows better access to the entire cervical canal and facilitates drainage. I prefer linear cauterization of the endocervix to conization, which I feel is too destructive and thus more conducive to ultimate cervical stenosis and stricture.

It has been my experience that chemical cauterization with silver nitrate, acetic acid, trichloracetic acid, or other agents is ineffective. This is understandable in the case of a deep-seated infection of the endocervical mucosa and its mucoid secreting glands either within the cervical canal (endocervicitis) or aberrantly on the pars vaginalis (erosion) (usually both are present). It is therefore not surprising that mere surface application of chemicals fails to eradicate the trouble. Indeed, the involvement is so deep-seated in most cases as to involve not only the mucous membrane but the fibrous tissue beneath. The term "cervicitis," instead of "endocervicitis," is perhaps more appropriate and should include erosion as well. The same considerations serve to explain a similar lack of success with the use of topical cervical applications and vaginal insufflations of penicillin, aureomycin, and other antibiotics.

Summarily, I now employ the electrocautery in the treatment of cervicitis including erosion. Linear cautery of the endocervix is preferred to conization. I do not employ chemical cauterization or local medicinal applications to the cervix in these conditions.

2. *Incision or Excision of Nabothian Cysts.*—A Nabothian cyst is a retention cyst of a cervical gland. Such a cyst rarely attains appreciable size and even more rarely interferes with uterine drainage. It is the innocuous result of an obstructed endocervical gland which is usually seen as a bleb on the cervix. If punctured a gob of mucus is released. Such cysts usually are seen in association with a healing erosion. It is believed that while the obstruction of the gland duct occasionally may be the direct result of infection from debris and edema, it is

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more often the result of healing, during which process sheets of squamous epithelium grow over the glands and seal their contents. In other words, in most instances Nabothian cysts are the result of healed or healing erosions and as such do not require any special treatment. Neither incision nor excision is necessary. If, however, there is associated active erosion and cervicitis for which electrocautery is proposed, the accompanying Nabothian cysts are burned out to remove the buried, enlarged glands and to facilitate healing. These structures should be recognized as innocuous and insignificant. They certainly do not require surgical intervention.

3. *Excision of Cervical Polyps.*—Cervical polyps are soft, red, highly vascular, mobile growths, attached usually within the cervical canal by a pedicle. Occasionally single, but more often multiple, polyps are associated with cervicitis, which in most instances is thought to be their cause. Per se they are pathologically of little importance, but, because of possible confusion with carcinomas, they are ever a potential hazard and must be approached with caution. The confusion with the carcinoma should not be one arising from the gross pathologic characteristics which are different in the two conditions but may well arise from the fact that both entities are characterized by abnormal uterine bleeding. In both instances the bleeding may be spotty in nature, intermenstrual, and/or postcoital. Furthermore, with the above type of bleeding, even in the presence of an obvious cervical polyp, one must never ignore the possibility that carcinoma exists. It is assumed to be present until ruled out.

Prior to the addition of the cytologic smear to the diagnostic armamentarium, the policy was to remove cervical polyps only in the hospital with thorough dilation and evaluation of the cervical canal under anesthesia. Since the advent of the smear, it is justifiable to remove a protruding, easily accessible polyp in the office, if such removal is preceded by a cytology report negative for cancer. Electrocautery is used to effect hemostasis at the base of the polyp and to eradicate the associated cervicitis. Of course, complete pathologic study of the tissue removed is imperative. If there is any more bleeding following this procedure, hospitalization with dilation, examination of the endocervical canal, and curettage of the endometrial cavity is indicated.

4. *Trachelorrhaphy.*—I have used this procedure less and less and have practically abandoned it. In the past it has been performed for a variety of indications.

A. Asymptomatic Lacerations: A cervical laceration that is producing no symptoms and is uncomplicated by additional cervical pathology requires no surgical intervention. While there is a higher incidence of carcinoma of the cervix in multiparous patients in whom obstetric cervical trauma is thought to be a factor, there is insufficient evidence to incriminate the torn cervix as the cause of cervical carcinoma. Repair or amputation as a prophylactic measure does not seem warranted. In the absence of symptoms, I leave them alone.

B. Laceration with Pain: When lacerations of the cervix extend into the lateral vaginal fornices or beyond into the broad ligaments, there may be resulting scarring, fixation, and pain. If the pain is sufficient to demand attention, repair or even amputation of the cervix seems inadequate to relieve the symptom. The pain results from the tearing and scarring of the deeper parametrial tissues and is most marked as dyspareunia. Therefore, it might be expected that nothing short of hysterectomy will relieve it. In most cases of scarring in the fornices and parametria, nothing need be done. If the pain requires surgical intervention, I prefer hysterectomy.

C. Laceration and Spontaneous Abortion: Surgical repair of the torn cervix has been advocated to prevent spontaneous abortion of a subsequent pregnancy. While it is possible for a severe cervical laceration to bear such an etiological relationship, it is exceedingly difficult to prognosticate it. Certainly most of the time pregnancy is carried satisfactorily and nothing need be done to the cervix. Even in the event of one or more spontaneous abortions in the patient with a cervical laceration, repair of the lesion is not necessarily an indicated procedure in preventing another. Spontaneous abortion is much likelier to be the result of maldevelopment of the products of conception than to be due to the laceration of the cervix, even if the latter is present. In such cases a subsequent successful pregnancy is to be expected with or without repair of the cervical laceration. In cases of repeated or habitual abortion it seems probable that some underlying and as yet poorly understood endocrinopathy is responsible, rather than the more evident cervical laceration. In these cases the results of trachelorrhaphy are unsatisfactory. In general trachelorrhaphy is rarely indicated in the proposed prevention of spontaneous abortion.

5. *Amputation.*—This is another procedure that I have practically discontinued. In the years 1935 to 1939 cervical amputation was performed in 7% of all gynecologic operations at Passavant Hospital. From 1945 to 1949 the percentage had dropped to 4.5. In 1950 amputation of the cervix was performed in but 1% of gynecologic operations. A brief statement follows relative to the conditions for which it has been performed in the past. Mention has already been made of its former use in the treatment of cervical lacerations.

A. Leukorrhea: Leukorrhea of cervical origin is mucoid or mucopurulent in character and may originate from the pars vaginalis or the endocervical canal or, as is commonly the case, both. As previously described, the treatment is electrocauterization, which in the large majority of instances is adequate. In severe, persistent cases cervical amputation rarely may be performed as a last resort, but in such unusual cases hysterectomy should be considered.

B. Amputation of the "Raw," "Bleeding," "Unhealthy" Cervix: I had formerly used the preceding terms, which are in a sense effectively descriptive; however, as recently pointed out by Dr. Arthur Curtis, they are clinically unscientific and pathologically meaningless. To remove a cervix because it is "raw," "bleeding," or "unhealthy-looking" is to operate without any basis of scientific rationale. It is imperative to establish a pathologic diagnosis in any such cases by the use of cytologic smears and biopsies. Erosions, cervicitis, polyps, and lacerations must all be identified separately or collectively and treatment or no treatment employed as indicated previously. The possibility of cervical carcinoma always must be kept in mind. It must be ruled out or definitely established as a diagnosis before any procedure is done to the cervix, even though it be only cauterization. To amputate an "unhealthy" cervix, that is subsequently found to contain carcinoma is gross mismanagement and a therapeutic blunder. I feel that under no circumstances does amputation of the cervix have a place in the treatment of clinical cancer.

C. Cervical Amputation in Conjunction with Vaginal Plastic Operations: Cervical amputation as a part of vaginal plastic operations (as in the Manchester or Fothergill procedure, of which it is an integral part) until recently has been done by some of us occasionally. In a sense, it was in such instances that amputation of the cervix made its last-ditch stand as a procedure of any importance. With the current shift away from such "intermediate" procedures to vaginal hysterectomy, cervical amputation has practically been abandoned.

### CORPUS

1. *Abdominal Total Versus Abdominal Subtotal Hysterectomy.*—One of the most striking changes over the past several years has been the attitude relative to abdominal subtotal (supravaginal or supracervical) hysterectomy. The transition has been away from subtotal toward total hysterectomy, gradual at first but accelerated during the last few years, until today the propriety of leaving the cervix behind in any case is questioned. In the years 1935 to 1939, 61% of abdominal hysterectomies performed at Passavant Memorial Hospital were subtotal. Ten years later, in the years 1945 to 1949, the percentage had dropped to 7, while in 1950 the figure was a mere 2%.

Perhaps the only justification for leaving the cervix is in the rare emergency where the saving of a few minutes becomes of vital importance. Other arguments advanced in support of abdominal subtotal hysterectomy seem unimportant or irrelevant. Certainly the presence or absence of the cervix does not affect the sexual desire or its gratification. A carefully done abdominal total hysterectomy does not produce distortion, shortening or scarring of the vaginal vault to the point of mechanically interfering with coitus or of producing dyspareunia, and, of course, the cervix is not essential to accomplishing an orgasm. It is my belief that the removal of the cervix does not predispose toward prolapse of the vaginal vault or postoperative complications to the ovary.

On the other hand, I feel that prolapse of the cervical stump is perhaps likelier to occur than prolapse of the vaginal vault following abdominal total hysterectomy. Furthermore, the cervix is frequently the source of bothersome leukorrhea, and, while this problem may be entirely divorced from the pathology for which hysterectomy is being proposed, it remains if the cervix is not removed.

If the cervical stump is of no value, which is my belief, it seems not only irrational but hazardous to leave it after removal of the corpus. It is not only likely to be the source of bothersome discharge or to prolapse but it may be the site of other pathology, including carcinoma. Since the cervix is the most frequent site of genital cancer, it seems logical to remove it with the corpus at the time of the abdominal hysterectomy. There is no reason to leave it behind, and it is the source of potential trouble.

The very nature of the pathology for which removal of the uterus is indicated in many cases makes abdominal total hysterectomy imperative. Of primary consideration in this connection is carcinoma of the endometrium, for which abdominal total hysterectomy plus bilateral salpingo-oophorectomy must be done. Pelvic endometriosis when the extent of the pathology has caused fixation of the cervix with resulting symptoms may require intervention. If removal of the corpus with or without the removal of the ovaries is proposed, the cervix should likewise be removed. Fixation of the cervix may be the result of previous pelvic inflammatory disease as well as endometriosis, and, in such cases where surgery may be required, abdominal total hysterectomy is again indicated. Furthermore, specific neisserian infections occasionally still may leave chronic cervicitis as a part of the "residue," even with modern treatment. Such cervices must not be left behind if abdominal hysterectomy is found to be necessary for pain and/or bleeding from the residues of such infections.

The increased incidence of surgical trauma to the urinary tract at abdominal total hysterectomy has been advanced as an argument for performing subtotal hysterectomy. I feel that this need not and should not be a consideration. With a little care, such increased hazard can be minimized. With careful bladder reflection, incision of the peritoneum, and adequate dissection of the bladder from the cervix in a downward direction in the proper plane of cleavage, the danger to the bladder can practically be eliminated. Likewise, if each clamp on the cardinal ligaments is placed mesially to the pedicle of the uterine vessels, the ureters will "fall" laterally and escape injury. Anyone qualified to open the abdomen and perform a subtotal hysterectomy can and must be qualified to execute complete removal. According to the present concept, except in the most unusual circumstance, it is an inadequate procedure to omit removal of the cervix at abdominal hysterectomy.

2. *Fundectomy or Defundation Operations.*—In the strict sense this procedure is another type of subtotal or supracervical hysterectomy. Fundectomy is a term usually used to describe a high amputation of the body of the uterus wherein the lower portion of the corpus is left intact. In the past, fundectomy was performed for various reasons. It was formerly advocated for removal on occasion of a retrodisplaced uterine corpus, for hypermenorrhea, for removal of fibroids in the fundus, and as a means of sterilization. As will be discussed later, the present concept of uterine retrodisplacement is such as to dictate nonsurgical intervention in the great majority of instances.

Hypermenorrhea is, of course, a symptom, not a disease. Prior to any type of surgical intervention in a patient who presents this symptom, a diagnosis must be established and the appropriate treatment instituted. In those cases in which no organic pathology is detected and in which a diagnosis of ideopathic or functional (or dysfunctional) bleeding is made, conservative, nonoperative management is indicated first. If, in spite of conservative supportive measures, such bleeding continues to a degree where operative intervention is imperative, total hysterectomy, not fundectomy, is performed. I prefer the vaginal route whenever possible.

With regard to fibroid tumors in the fundus, it can be said that, if any surgery is warranted, either myomectomy or total hysterectomy is indicated, depending on the circumstances in the individual case. The decision to perform a myomectomy in such cases is predicated on the patient's desire and presumed ability to bear children. To remove the fundal portion of the uterus with the cornua and interstitial portions of the tubes in such a patient is to preclude this possibility and to incompletely remove an organ that at once is without a function and is the potential site of more fibroid tumors or other pathology.

Fundectomy is not the operation of choice in sterilization procedures. I prefer total hysterectomy. In general, fundectomy or defundation procedures are considered obsolete by my co-workers and me because they are either meddlesome and unnecessary or incomplete and inadequate.

3. *Uterine Suspension or Replacement Operations.*—The growing conviction that uterine retrodisplacement represents a variation in normal anatomy rather than a pathologic entity in gynecology has changed the perspective greatly with regard to replacement operations. More and more I have come to consider uncomplicated uterine retrodisplacement as an insignificant finding and responsible for few if any symptoms. How often have all of us discovered an unsuspected uterine retrodisplacement in an entirely asymptomatic patient? Moreover, most of the symptoms formerly attributed to a malplaced uterus are no longer thought to be so caused. The "tipped" uterus is all too often erroneously incriminated as the cause of backache; constipation; "bearing down," pressure, and weight sensations; dysmenorrhea; dyspareunia; sterility; and spontaneous abortion. Rarely, if ever, are such symptoms the result of an uncomplicated retrodisplacement.

The only replacement operations still done in our group are those performed in conjunction with and secondary to other surgical procedures for complicating pelvic pathology. In those cases a Baldy-Webster type operation may be performed in combination with the suturing of the uterosacral ligaments and advancement of the vesical reflection of peritoneum. Anterior suspension or fixation operations, such as the Gilliam, Simpson, and Graves procedures, are no longer done. Such fixation procedures are never indicated in cases of uterine prolapse.

4. *Vaginal Hysterectomy.*—Another very definite change in surgical thinking is reflected in the increasing trend toward vaginal hysterectomy. In the years 1935 to 1939, at Passavant Memorial Hospital, 21% of all hysterectomies were done by the vaginal route. In the years 1945 to 1949, the percentage had risen to 26. For the year 1948 alone, 35% of all hysterectomies were performed vaginally, and the percentage in 1950 had reached 41.

This trend toward vaginal hysterectomy is the result of two influences: first, the belief that this procedure is less profoundly upsetting to patient than abdominal section and is less frequently followed by serious postoperative sequelae; second, the belief that it is the procedure of choice in conjunction with vaginal plastic operations rather than the "intermediate" Manchester or interposition operations, which for all practical purposes I have abandoned.

It seems reasonable to conjecture that vaginal hysterectomy with its minimal invasion of the peritoneal cavity is less likely to interfere with gastrointestinal function, is less likely to cause "gas pains," is less likely to be followed by peritoneal irritation, and is less likely to lead to hazardous intraabdominal infection, adhesions, and obstruction than hysterectomy via the abdominal route. Such conjecture is borne out by clinical experience. In addition, it has been pointed out by several groups, that the incidence of thromboembolic phenomena and postoperative respiratory infections is less following vaginal than abdominal hysterectomy. Vaginal vault infection with purulent drainage and intermittent fever, an occasional postoperative complication of vaginal hysterectomy, although bothersome to both patient and gynecologist, is really a lesser complication and not comparable to the potentially greater hazards of abdominal hysterectomy.

Therefore, I prefer vaginal hysterectomy to the abdominal route whenever possible, realizing that abdominal removal is indicated in carcinoma of the endometrium or ovaries, in endometriosis or when there is associated adnexal pathology, such as residues of pelvic inflammatory disease or ovarian tumor. In general the symptom of pain and the finding of uterine fixation dictate against vaginal removal. Vaginal hysterectomy can be performed for fibroids up to the size of a three-month gestation. Removal of the uterus for bleeding with or without fibroids should be via the vaginal route if cancer can be ruled out and there is no other contraindicating pathology. The vaginal route, of course, is preferred in cases of prolapse.

*Recent Trends in Hysterectomy and Cervical Amputation*

| Procedure | 1935-39 | 1945-49 | 1950 | 1918 Alone |
|---|---|---|---|---|
| All Hysterectomies | | | | |
| Vaginal, % | 21 | 26 | 41 | 35 |
| Abdominal, % | 79 | 74 | 59 | 65 |
| Abdominal Hysterectomies | | | | |
| Total, % | 39 | 93 | 98 | .. |
| Subtotal (supracervical), % | 61 | 7 | 2 | .. |
| Cervical amputations expressed as % of all gynecologic procedures | 7 | 4.5 | 1 | .. |

Another explanation of the increased incidence of hysterectomies done by the vaginal route is the aforementioned belief that removal of the uterus is preferable, in conjunction with vaginal repair operations, to "intermediate" procedures such as the Manchester or interposition operations. Vaginal plastic procedures are usually done in women who are past the childbearing years. If such an operation is proposed in a younger woman, some form of sterilization should accompany it. In the younger group it is felt that hysterectomy affords the surest, safest means of sterilization. It seems irrational to us to amputate the cervix and leave the corpus in such cases or to unanatomically interpose the corpus between the vagina and bladder. Such a procedure seems incomplete and inadequate, allows for the possibility that additional uterine pathology may develop, and increases the probability of a further surgical procedure in the future. Last, but certainly not least, I feel that more satisfactory and lasting support is achieved with hysterectomy than with the other procedures.

5. *Leaving the Uterus After Bilateral Salpingectomy and/or Oophorectomy: An Error of Omission.*—It is my policy to perform an abdominal total hysterectomy if both tubes and/or ovaries are removed. A uterus left behind after removal of both tubes and/or both ovaries has no known function, is a potential source of trouble pathologically, and may necessitate a second operative procedure because of bleeding or pain. In cases in which both tubes have been removed and some ovarian tissue has been left, functional bleeding irregularities are by no means infrequent. If both ovaries have been removed, such bleeding may follow any attempt to administer estrogenic replacement therapy. Pain is less likely to cause trouble, but, if adhesions and fixation with pain are a part of the original pathologic process for which bilateral salpingectomy and/or oophorectomy was done, leaving the uterus may result in persistent pain following surgery.

### SUMMARY

1. A reevaluation of some of the commoner uterine procedures is attempted. The rationale behind the recent trends relative to these procedures is presented.

2. I employ the cytologic smear prior to any treatment of cervical lesions. Biopsy studies of all suspicious areas must be done. After a negative report, simple polyps are removed in the office and studied pathologically and erosions are treated with the electrocautery. Nabothian cysts not found in the presence of active cervicitis and erosion are left alone. I prefer linear electrocautery of the endocervix to conization and do not employ chemical cautery or topical application of antibiotics.

3. Trachelorrhaphy is for all practical purposes an obsolete procedure, and cervical amputation is rapidly becoming so. It was done only one-seventh as frequently in 1950 as in the latter half of the 1930's.

4. There is an ever-increasing trend toward vaginal hysterectomy, which I believe to be a less hazardous procedure than abdominal hysterectomy. I realize that abdominal hysterectomy remains the treatment of choice and even imperative in certain conditions, but in all cases where there is an option I prefer the vaginal route. In percentage terms, approximately twice as many vaginal hysterectomies were performed at Passavant Memorial Hospital in 1950 as were being performed in the late 1930's.

5. Supracervical hysterectomy is rapidly disappearing from the list of uterine procedures, only 3 in 156 abdominal hysterectomies appearing in the records for 1950. High removal of the corpus (so-called fundectomy) is no longer performed at Passavant Memorial Hospital. Total removal in all abdominal as well as vaginal hysterectomies is strongly preferred.

6. Uterine replacement or suspension operations are also done in fewer and fewer instances, in keeping with the changing concepts relative to uterine retrodisplacement.

7. Finally, the uterus is always removed if both tubes and/or both ovaries are removed. Such a uterus serves no function and may be a source of subsequent trouble.

700 N. Michigan Ave. (11).

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# WORLD MEDICAL ASSOCIATION AND MEDICAL EDUCATION

## FIRST WORLD CONFERENCE ON MEDICAL EDUCATION

*Louis H. Bauer, M.D., Hempstead, N. Y.*

For over two years the World Medical Association, which includes in its membership the national medical associations of 43 countries, has been considering calling a conference on Medical Education on a global basis. At the Fifth General Assembly, held in Stockholm, Sweden, in September, 1951, the assembly voted unanimously to authorize such a conference. The association's Medical Education Committee, of which Dr. J. A. Pridham of England is chairman, drafted tentative plans last fall. In Paris, Jan. 19 and 20, 1952, an organizing committee was appointed, and plans were made more definite. At this meeting, besides representatives of the World Medical Association, there were representatives of the World Health Organization, UNESCO, The Committee for the Coordination of International Congresses on Medical Sciences, and the International Association of Universities. All these organizations have been asked to participate in the conference. So far, definite acceptances have been received from the World Health Organization and CCICMS.

All phases of medicine have their foundation in medical education. A conference such as this has never been convoked before on a global basis. We feel that it will be one of the most important events in medical history. The agenda of the conference will be divided into three main topics: 1. Requirements for entrance to medical studies and the selection of students. (This will include determination of the suitability of the student to continue his studies.) 2. Social medicine, its concepts and place in the medical curriculum. (It should be pointed out that social medicine has no relation to so-called socialized medicine.) 3. The aims and content of the medical curriculum. The conference will be limited to undergraduate medical studies. By "undergraduate" we mean the American use of that word, namely, the training up to qualification as a physician. To discuss postgraduate education would require more time than will be available. The aims of the conference will be: (1) an exchange of ideas; (2) possible unification of thought; and (3) aid to underdeveloped countries.

Views will be sought from both medical educators and the consumers of medical education, namely, practicing

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Secretary General, the World Medical Association, and President-Elect, the American Medical Association.

Read before the Forty-Eighth Annual Congress on Medical Education and Licensure, Chicago, Feb. 11, 1952.

physicians. Since medical education in many countries is under government control, the viewpoint of government will also be brought out. Invitations will be extended to medical schools, national and international bodies concerned with medical education, and to persons who are outstanding in that field.

The conference will have an organizing committee consisting of representatives of the World Medical Association and representatives from other sponsoring organizations. This committee will be responsible for the general organization of the Conference. There will be various subcommittees on program, finance, local arrangements, editorial supervision, and publicity. An outstanding figure in the field of general education will be selected for honorary president, and an outstanding figure in the field of medical education has been selected as the actual presiding officer of the conference. He is Sir Henry Cohen, professor of medicine at Liverpool University. There will be a small group of British officials listed as patrons, since the conference will be held in England.

A distinguished person will be selected from each participating country to serve as an honorary vice-president, and there will be at least three active vice-presidents, each outstanding in his field, who will preside over the various sections of the conference. If it is decided to hold special sessions or symposia, a chairman will be selected for each. The General Secretariat of the World Medical Association will be in general charge, but there will be a subsecretariat established in London, under the auspices of the British Medical Association. This association will appoint the subcommittee on local arrangements.

Prior to the conference, a booklet will be prepared for distribution outlining the status of medical education in various countries. This will serve as a background for the conference. The first day of the conference will be a plenary session, opening with addresses by the honorary president and the active president. These addresses will followed by prepared papers on medical education in various areas of the world, which will serve as an extension of the information contained in the preliminary booklet and as an orientation for the conference.

The next three days will be devoted to section meetings, sessions, or symposiums on the various phases outlined in the three themes of the conference already mentioned. Invited participants will present formal papers and qualified persons will be invited to open the discussion. The final day and a half or two days will again be devoted to plenary sessions in which the vice-presidents of the conference will present a digest of the material presented in the sections. Some time during the week, there will be a break of a day or two half days for excursions to educational institutions.

There will be no attempt to adopt any resolutions, but it is contemplated that the proceedings of the conference will be printed for distribution. If funds permit, a permanent committee will send technical advisors to countries desiring such assistance. The presentation of the material, allowing countries to compare standards, will be helpful, but there should be a "follow through" if the standards of medical education are to be raised or improved anywhere in the world.

It must be borne in mind that, at the present, complete unification of standards is not possible, for the standards of medical education in any country depend largely on the economy and the facilities available. Also, certain details of the curriculum must vary with the area of the world; for example, it is of little value for the American student who is going to practice in the United States to know more than general facts about leprosy, cholera, and plague, but it is extremely important for the student in the Far East to know much about them. Too often the opinions of the practicing physician are ignored. Who is better qualified than the man in practice to know whether his medical education has met his needs in practicing medicine or to state what its deficiencies were?

The conference will be held in London, Aug. 24 to 29, 1953, and headquarters will be at the House of the British Medical Association. All member associations of the World Medical Association have been asked to present their ideas on the conference, to suggest names of organizations and persons to be invited, and to indicate whether they are willing to participate. So far the response has been gratifying, and, of those replying, all have expressed approval of the plan. The other international bodies that have been invited to participate have all expressed approval, and two of them, so far, have indicated they will render financial support. It is hoped that final details of the program will be settled at a meeting of the organizing committee in Brussels, in April, and invitations will be issued shortly thereafter.

The American Medical Association, through its Board of Trustees and its Council on Medical Education and Hospitals, has gone on record as approving the conference and has offered numerous suggestions as to the program and functioning. It will also have representatives in attendance. I hope other educational groups will also indicate approval of the project and offer suggestions for the consideration of the organizing and program committees and that American medical schools will be well represented.

*131 Fulton Ave.*

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**Moral Responsibilities in Clinical Research.**—The most praiseworthy zeal for knowledge may lead the man whose technical background overshadows his caring for the patient into a disregard for the subject of his researches. Thus, potentially dangerous experiments may be done without the subjects' knowledge or express permission. Whether it be thoughtlessness or heartlessness, such practice is a measure of the moral obliquity which exists in some high places of research today. Fortunately, it is not widely current, but it does exist. At a time when ethical standards are high, or religion elevates moral tone, this situation would have other correctives. They are not effective today. Moral necrosis is sinister in its pervasive insinuations, and all who are concerned with clinical research, that is, experiments on themselves and their fellow man, must face the implications. . . . Never forget that the difference between an experiment on human beings without clear understanding and freely granted permission, and the determination of the M. L. D. in man is one of degree, not of kind. The patient, however humble and however ill, in whatever degree derelict and forlorn, has sacred rights which the physician must always put ahead of his burning curiosity.—William Bennett Bean, M.D., A Testament of Duty: Some Strictures on Moral Responsibilities in Clinical Research, *The Journal of Laboratory and Clinical Medicine,* January, 1952.

# RECENT TRENDS IN UROLOGIC PRACTICE

*W. Joseph McMartin, M.D.*
*and*
*D. Franklin Milam, M.D., Omaha*

Changes and trends in the treatment of disease and abnormalities of the urogenital system are proceeding at such a rapid pace that the general practitioner and the urologist must maintain a common interest in the numerous and valuable advances that are lowering daily the mortality and morbidity rate and increasing the number of clinically cured. It is the frequent discussion of common problems between the general practitioner and the specialist that spreads the knowledge of recent advances and the methods of attaining easier and more rapid solution to the many difficult situations confronting us in the practice of medicine.

Elmer Hess [1] has pointed out that "every general practitioner is, or should be, a urologist of sorts." To this very true and wise admonition should be added that, because of the nature of the urologist's training in general practice first and urology later, he should be cognizant always of the problems of general practice if the best interests of the patient are to be kept foremost.

The greatest volume of a urologist's practice stems from that of the general practitioner. Many of these patients should and can be treated by the general practitioner. Specialists in every field of medicine are working toward making it practicable for the family physician to keep many of his patients at home (it is often a necessity for the patient and his family in these economically unsound days). After all, "three-fifths of the practice of medicine depends on common sense, a knowledge of people and of human reactions." [2] Certainly the physician in general practice is most likely to have these attributes.

## ABNORMALITIES OF GENITALIA

One hundred years ago, S. D. Gross recognized the seriousness of malformations of the genitalia. He admonished his students that these "congenital vices ought to be well understood on account of their practical importance, and the sad effects which they exert upon the happiness of the poor sufferer."

*Pinpoint Meatus.*—Often the urologist is asked to see genital abnormalities that should be treated by the family physician. The infant with a congenitally small meatus is seen too often by the urologist. The mother gives the history that the baby cries at every voiding, that he has blood on his diaper occasionally, and that there is irritation around the urethral opening. The child has been treated with ointments and dusting powders to no avail. The diapers have been washed in boric solution and dried to try to allay the accompanying diaper rash, and this has failed. What has been the progression of the trouble since birth? It is the old story of poor drainage, often the cause of pain in any part of the urinary tract. In the so-called pinpoint meatus there is poor urinary drainage. The bladder contracts to expel the urine through the relaxed sphincters, but the opening through the meatus cannot accommodate the volume of urine. As a result the anterior urethra is ballooned out, generating pain. What is it that causes crusting of the lips of the meatus and sometimes bleeding? There is a web across the inferior part of the meatus that retains a few drops of urine within the distal portion of the urethra. The urine causes an inflammation in the terminal portion of the urethra that then causes a concomitant inflammation of the pinpoint meatus and often a rash of the scrotum and thighs. If the pinpoint meatus is not treated, chronic distention of the bladder, hydroureters, hydronephrosis, and destruction of the kidneys may supervene, with infection of the entire urinary tract. This condition should be discovered on examination of the infant's genitalia at birth. A meatus with an anteroposterior diameter of 3 mm. or less in the infant is abnormally small. In a child of 1 year the meatus should accommodate a no. 10 French sound, at 5 years a no. 15 French sound, and at 10 years a no. 18 French sound. The adult meatus should accommodate normally at least a no. 24 French sound.

Meatotomy is simple and needs no anesthetic in the infant. A small artery forceps is used. One jaw is inserted within the urethral meatus to the floor of the urethra posterior to the urethral web. The forceps is closed on the web in the midline for five minutes in order to crush this tissue and render it avascular. The hemostat is then removed. A small knife blade is used to incise the crushed web in its midline. There is hardly ever any bleeding. We use digital compression for five minutes to stop any bleeding. No sutures need be inserted. The wound heals within one week. The incision should be kept from healing across the midline by using manual pressure after each voiding to keep the cut lips of the meatus separated until the edges are completely healed.

In older children and in adults this method of meatotomy should be used after injecting 1% procaine solution into the base of the web and the frenum. In infants, a bougie and, in older children and adults, a sound should be passed through the meatus until the meatotomy wound is healed.

*Phimosis.*—Another common condition frequently overlooked and not considered very important is phimosis. This is present in almost all male infants, but by the time they have reached puberty it usually disappears. However, in some persons there are congenital adhesions between the inner leaflet of the prepuce and the surface of the glans. There are many men who have never been able to retract the prepuce. Some of these have stenosis of the preputial meatus caused by repeated insults of inflammation that result in cicatricial contracture. It is in these patients that carcinoma of the glans penis or the

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Read at the Fifth Clinical Session of the American Medical Association, Los Angeles, Dec. 5, 1951.

[1] Hess, E.; Roth, R. B., and Kaminsky, A. F.: The General tioner as Urologist, J. A. M. A. 144:601 (Oct. 21) 1950.

[2] Cushing, H. W.: Medicine at the Crossroads, in The and Other Papers, Boston, Little, Brown & Company,

inner aspect of the prepuce may occur. All urologists know that carcinoma of this area of the penis is almost unknown amongst Jews; because of their religious rites, they have been circumcised in infancy. Circumcision is the treatment for phimosis and paraphimosis; the latter condition exists when the prepuce has been retracted posteriorly over the glans penis successfully but cannot be returned to its normal position over the glans.

Circumcision is a minor operation, but it is often badly performed. The best method is the subcutaneous method, brought out as a new operation a few years ago; however it was used 50 years ago in Chicago by the urologist Louis Schmidt, and he taught this method to his residents. The operative technique consists of a circular incision through the skin of the outer leaflet of the prepuce at the site of bulging of the corona of the glans penis. The prepuce is then retracted. A circular incision is made through the mucosa approximately ⅛ in. (0.3 cm.) posterior to the coronal sulcus in infants and about ¼ in. (0.6 cm.) in adults. The two circular incisions are joined by a straight incision through the skin. The skin is dissected away between the two circular incisions. This method leaves all the subcutaneous tissue. It disturbs the nerve supply around the frenum to a minimal extent. There is little bleeding, because no large vessels are cut across, as is the case in the other methods. After the skin between the two circular incisions is removed, the skin and mucosal edges are sutured together with interrupted no. 0 plain surgical suture. Five milligrams of diethylstilbestrol is given intramuscularly before circumcision of adults and 1 mg. three times a day by mouth for three days postoperatively. This has prevented painful erections postoperatively in all but one of our patients circumcised.

*Hypospadias and Epispadias.*—Other malformations of the urethra that usually are noticed first by the general practitioner are hypospadias and epispadias. In hypospadias the urethra opens on the ventral surface of the penis at a point proximal to its normal position. It may be in the area where the frenum is usually situated. This is the glandular type. It may open anywhere along the course of the urethra. If it is along the ventral surface of the shaft of the penis, it is called penile hypospadias. It may be at the penoscrotal juncture, or the scrotum may be bifid. The scrotum may be almost absent, with the testes undescended. The penis has a downward curvature in all cases.

It should be emphasized that if any form of hypospadias is present the child should not be circumcised. This is important, because valuable tissue is sacrificed that may be needed to correct the defect in the urethra.

Several operations have been devised recently to reconstruct the urethra after correction of the downward curvature of the penis. They have been devised to prevent the occurrence postoperatively of urethral fistulas. With chemotherapy these operations for hypospadias are eminently successful. They are somewhat successful in correcting the rare malformation epispadias, with and without exstrophy of the bladder. If the sphincters are malformed and incontinence is present, however, insertion of the ureters into the sigmoid is the treatment of choice for this abnormality.

The family physician should call to the attention of the parents these congenital deformities in order that correction may be instituted early. The glandular type of hypospadias needs no treatment unless there is a stenosed external urethral meatus, which may be enlarged by dilatation or meatotomy if necessary. If there is marked downward curvature of the penis, this must be corrected by releasing the restricting bands of tissue. The straightening of the downward curvature should be done by the time the child is 1 year of age. This is important to allow for the development of a normal size penis.

The Denis Browne technique for construction of the new urethra has been popularized by Burns[3] in this country. Its advantage over other techniques is that it is a one stage operation; it is simpler and more easily performed. It provides eventually a satisfactory urethra with a normal function.

One point that should be emphasized to the child's parents is that if the operation is to be performed in two stages both stages should be completed by the time the child reaches school age. Three years should elapse between the first and second stage to allow for the growth of the penis.

### HEMATURIA AS A SYMPTOM OF CARCINOMA

Another common symptom is hematuria. Most urologists can cite a high percentage of recent instances in which the patient's history of this symptom dates back over one year. Too many patients are not thoroughly examined urologically in order to determine the source of the bleeding. Among 694 patients[4] with hematuria caused by carcinoma of the urinary bladder, the Carcinoma Registry of the American Urological Association reports that the diagnosis was proved within one month of onset in only 10.8%, within five and one-half months in 32.3%, and within one year in 51.7%. It is sad to relate that in 48.3% it was not possible to begin treatment for carcinoma of the bladder until over a year had passed since the initial appearance of symptoms. In 63.5% of the patients the first symptom was hematuria.

Hematuria was also the initial symptom of malignant tumor of the kidney in over 60% of the cases. In a comparison of malignant tumors of the urinary bladder and of the kidney, the probability is that in those with painless hematuria, approximately 75% will have tumor of the bladder.

In view of these appalling percentages, it behooves us all to urge every patient with hematuria to have a complete medical and urologic examination. Early recognition of cancer in the urogenital tract, as in other systems of the body, is the only chance of cure.

Papilloma of the bladder is considered to be nonmalignant by most pathologists and urologists, but by many it is considered potentially malignant. It may be single or multiple and is of the simplest morphology of epithelial tumors of the bladder. It bleeds frequently. Urologists vary in their methods of treatment of this tumor. We have had the best results, as far as five year cures are concerned, by transurethral resection of the base of the tumor along with part of the muscularis of the bladder at the site of the tumor. We then fulgurate the site resected. In those with multiple small papillomas transurethral resection and fulguration have also been our choice of treatment. In grade 1 and 2 papillary carcinomas of the bladder we prefer transurethral resection of the tumor and fulguration of the base. This method has become more popular in the last five years.

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[3] Burns, E.: The Denis Browne Operation for Hypospadias, J. Urol. 64: 382, 1950.

[4] Higgins, C. C.: Cystectomy for Bladder Carcinoma, J. Urol. 64: 318, 1950.

For infiltrating carcinoma of the bladder we have had very unsatisfactory results with all methods of treatment. When the tumor has invaded the wall of the bladder to the extent that it can be palpated easily on rectal or vaginal examination and when metastases beyond the wall are palpable or can be demonstrated microscopically, in either the perivesical tissues or the lymphatics, resection of the tumor or bladder will not cure the patient. Recent reports state that total cystectomy and ureterosigmoidostomy should be performed in these cases and that cure may be obtained in some when the iliac, hypogastric, and retrofemoral lymph nodes are removed.

In patients who have carcinoma of the bladder too far advanced for a possibility of cure and who have severe dysuria, frequency, and pain, great relief from these symptoms may be obtained in some by insertion of the ureters into the sigmoid. Deep x-ray therapy to the bladder in some instances will give some relief from pain, and there will be partial regression of the tumor in a few cases, with some control of the hematuria. Many more case reports will have to be compiled before a true answer can be given as to the best method of treating tumors of the urinary bladder. Patients will have to be followed not for five years but for the rest of their lives in order to determine the correct percentage of permanent cures. It is up to the general practitioner and urologist to educate the public concerning the seriousness of hematuria.

It is essential that patients treated for carcinoma of the urinary bladder be examined cystoscopically every three to six months for five years and every year thereafter if the mortality rate in this disease is to be lowered.

Another important cause of hematuria is tumor of the prostate gland; in men past 60 benign hyperplasia of the prostate is usually the cause. It is not common in early carcinoma of the prostate, but it does occur during the course of the disease in 12 to 15% of the cases. Hematuria is usually not the first symptom of benign hypertrophy or of carcinoma of the prostate.

In those patients who have severe hematuria with distention of the bladder, the insertion of the catheter often does not relieve the distention, because of a great accumulation of clots within the bladder. Irrigation through the catheter until all distention disappears and no more clots appear is the treatment of choice. Suction through the catheter often removes the clots. If this is accomplished, the catheter should be left indwelling for constant drainage. One should always have a coudé catheter available for this type of patient because it will be more likely to slip into the bladder past the obstruction at the vesical neck. Recently a coudé catheter with a Foley bag attached has been manufactured, which can be distended so that the catheter can be left indwelling. If the distinction of the bladder cannot be relieved or the bleeding controlled, the patient must be hospitalized for further care, and emergency suprapubic cystostomy may have to be performed. If there are concomitant symptoms of infection of the bladder or symptoms of pyelonephritis, such as chills and fever, the patient should be placed in the hospital for drainage, because, if there is infection of the urinary tract with obstruction, the infection cannot be eradicated unless the obstruction is removed.

## CHEMOTHERAPY

A good working knowledge of the chemotherapy of infections is of paramount importance to all practitioners of medicine today. This is particularly true in dealing with infections of the urinary tract. One has at his disposal today specific agents that are effective in most urinary tract infections. Each of these agents has its own antibacterial spectrum, which is determined by isolation of the organism and laboratory studies of its sensitivity to the agent.

The success or failure of chemotherapy in urinary tract infections depends on three primary factors: 1. Obstruction due to any cause must first be recognized and eradicated before permanent cure can be effected. 2. Renal function must be adequate in order to deliver a sufficient concentration of the agent to the site of infection. 3. An agent must be selected and utilized in a dosage that, on the basis of laboratory tests, is effective against that particular organism.

Our present plan of diagnosis and treatment demands that the urine specimen be collected in such manner as to avoid contamination. In the male the urine voided into the second glass after thorough cleansing of the glans is usually sufficient. In the female, however, catheterization is imperative to avoid contamination.

The exact infecting organism can then be isolated by the Gram stain and culture. The Gram stain is a valuable office procedure for early recognition in the urine sediment of cocci, bacilli, or both, and with this information initial therapy can be instituted. Should this initial therapy fail, after a few days a complete urologic investigation should be done without delay.

Many infections will be seen by the general practitioner following surgical procedures on the urinary tract. After any prostatectomy infection is usually present, and its complete eradication should be our goal. Likewise, after cystostomy and nephrostomy infections are usually present, the duration of which may be shortened by existing therapeutic agents. A brief discussion of the most commonly used agents would appear to be of value at this time.

*Methenamine.*—Methenamine (urotropin®) continues to be a very useful drug, particularly after transurethral prostatectomy in which gram-negative bacillary infections persist. Formaldehyde is split off in urine made acid by the simultaneous administration of ammonium chloride or sodium acid phosphate. We prefer sodium acid phosphate because Cordonnier[5] has shown that

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5. Cordonnier, J. J., and Talbot, B. S.: Effect of Ingestion of Sodium Acid Phosphate on Urinary Calcium in Recumbency, J. Urol. 60:316, 1948.

this drug, while serving as an acidifying agent, simultaneously decreases the renal excretion of calcium, which helps prevent formation of concretions in the urinary tract. These agents are administered simultaneously in doses of 3 to 5 gm. daily for 10 to 14 days.

*Sulfisoxazole.*—The sulfonamides are still very useful as urinary antiseptics. A recent development in this series is sulfisoxazole (3,4-dimethyl-5-sulfanilamido-isoxazole), also known as gantrisin.® At present we use this agent almost to the exclusion of the other sulfonamides. It has a very high solubility even in acid urine, which has nearly eliminated our fears of renal crystallization. Carroll [6] has recently shown that this drug is effective in the treatment of Escherichia coli infections and is the agent of choice when Proteus infections are present. It is highly effective against Alcaligenes and moderately effective against Aerobacter aerogenes. Streptococcus fecalis and the Pseudomonas organisms do not respond. Thus it would appear that sulfisoxazole, with its wide antibacterial spectrum and decreased toxicity, is one of our safest and most effective agents in both office and hospital treatment of urinary infections. It may be administered in doses of 0.5 to 1 gm. every six hours.

*Penicillin.*—Penicillin is effective primarily against infections due to Str. hemolyticus of the beta type, Staphylococcus albus, and Staph. aureus as well as Neisseria gonorrheae. In mixed infections one usually employs both penicillin and sulfisoxazole during the initial course of therapy for five to seven days. Recently considerable evidence has been published to show that the use of sulfonamides and penicillin in combination exerts a synergistic antibacterial effect, and several preparations containing crystalline calcium penicillin G, sulfadiazine, sulfamerazine, and sulfamethazine have become available. Acceptance of these combinations must await thorough clinical trial.

*Streptomycin.*—Use of streptomycin in urinary tract fections has been largely replaced in our clinic by the catalytic hydrogenation derivative dihydrostreptomycin. The primary advantage of dihydrostreptomycin is its reduced neurotoxicity. It may be used in doses of 2 to 3 gm. daily when necessary. Infections caused by Bacterium coli, A. aerogenes, and P. vulgaris ordinarily respond well to streptomycin; however, resistant strains are common. Streptomycin is more effective and resistant strains are less likely to be produced when the urine is strongly alkaline. Alkaline urine may be maintained by the simultaneous administration of 1 gm. of sodium citrate every six hours.

The treatment of tuberculosis of the urogenital system has changed considerably since the advent of streptomycin. The site and extent of infection still plays a dominant role in management. From a large series of cases Semb [7] came to the conclusion that one cannot expect more than 50 to 60% cure, even in selected cases of unilateral renal tuberculosis, in which treatment is by surgery alone.

Before streptomycin therapy was available, bilateral renal tuberculosis was a completely hopeless problem, and we had little to offer other than sanatorium care.

Very frequently after nephrectomy for unilateral renal tuberculosis other complications also developed, such as draining fistulas, tuberculous cystitis, prostatitis, and epididymitis, which often proved fatal. Recently, however, there have been some signs of hope in the management of this disease and its many complications. Three agents, streptomycin, paraaminosalicylic acid, and chaulmoogra oil, are the substances in use today.

Streptomycin is effective against the tubercle organism; however, resistance to its effect is rapidly developed in many instances. Any supplemental agent, therefore, that would render the organism more susceptible to streptomycin would be of value. Slotkin [8] has shown that chaulmoogra oil and its esters are useful in helping to dissolve the capsule of the tubercle bacillus and thus potentiate the action of streptomycin.

Paraaminosalicylic acid is also effective against this organism, and resistance to its action is much slower to develop than with streptomycin alone. Thus, because paraaminosalicylic acid potentiates the action of streptomycin and lessens resistance, many investigators feel that these agents should always be given in combination. Lattimer [9] feels that the best available chemotherapy today is 1 gm. of streptomycin per day by injection combined with 12 gm. of paraaminosalicylic acid by mouth for one year.

*Aureomycin.*—Aureomycin, which has an extremely wide spectrum of effectiveness, has been most useful in our clinic for treatment of infections that have developed resistance to other antibiotics. We employ the less expensive agents initially and change to aureomycin only if resistant strains develop. Aureomycin is very effective against infections due to both gram-negative and gram-positive bacteria, chancroid, granuloma inguinale, and lymphogranuloma venereum. The accepted oral dosage of aureomycin for adults is 250 to 500 mg. every six hours. Full dosage should be continued for two or three days after the urine becomes sterile. Aureomycin, in our clinic, has a place all by itself in the control of bacteremia secondary to urethral instrumentation. Bacteremia is a real medical emergency, and one cannot wait for blood cultures and sensitivity tests before initiating therapy. The syndrome usually follows instrumentation of the lower urinary tract and is characterized by a severe shaking chill, high fever, mental disorientation, and, frequently, circulatory collapse. After initiation of aureomycin therapy (500 mg. every six hours) the temperature will frequently return to normal in six hours. It is highly advisable to continue aureomycin therapy for at least three days after complete disappearance of all symptoms. We have successfully treated 11 patients with bacteremia with aureomycin. Eight of these infections were due to B. coli, and three were caused by A. aerogenes.

*Terramycin.*—Terramycin, a product of the mold Streptomyces rimosus, is effective against a wide variety of micro-organisms, particularly penicillin resistant cocci and gram-negative bacteria of the urinary tract. As with aureomycin, we usually limit the use of terramycin to those infections that are resistant to penicillin, streptomycin, and the sulfonamides.

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[6] Carroll, G.; Allen, H. N., and Flynn, H.: Gantrisin: In Vivo and in Vitro Study in Urinary Infections, Urol. & Cutan. Rev. **53**: 677, 1949.

[7] Semb, C.: Renal Tuberculosis and Its Treatment by Partial Resection of Kidney, Acta chir. Scandinav. **98**: 457, 1949.

[8] Slotkin, G. E.: New and Rapid Method for Control of Urinary Tuberculosis: Preliminary Report, J. Urol. **58**: 464, 1947.

[9] Lattimer, J. K., in discussion on Van Cappellen, D.: Tuberculosis of Urinary Tract, J. Urol. **66**:619, 1951.

*Chloramphenicol.* — Chloramphenicol (chloromycetin®) is a relatively new antibiotic derived originally from the soil mold Streptomyces venezuelae and is currently produced by chemical synthesis. In contrast to aureomycin and terramycin, this agent is of primary value in the control of gram-negative bacillary infections that have developed resistance to other forms of therapy.

*Polymyxin.*—Polymyxin (aerosporin®) is an antibiotic substance produced by Bacillus polymyxa and is effective primarily against infections due to gram-negative bacteria. When all other agents fail, polymyxin will frequently be successful in eradicating the Pseudomonas organism. We have not utilized this agent extensively because of its uncertain role in the production of renal damage. Pulaski [10] feels that a daily dose of 2.5 mg. per kilogram of body weight is safe; he has seen no evidence of nephrotoxicity when the total daily dose is kept at that level.

*Arsenic.*—Arsenotherapy continues to be of value in the treatment of abacterial pyuria. We use oxophenarsine hydrochloride (mapharsen®) in increasing dosage every four days for a total of six or seven injections. The side-effects of arsenic therapy have been completely eliminated by dissolving 0.03 gm. of oxophenarsine hydrochloride in 10 cc. of sterile aqueous sodium ascorbate and slowly administering the mixture intravenously. After two injections of 0.03 gm. the dose is increased to 0.04 gm. After two injections of 0.04 gm. the dose is increased to 0.06 gm. and is administered two or three times.

### SUMMARY

We have mentioned some of the common urogenital embryological abnormalities that need the attention of the general practitioner only and some that need the cooperation of the general practitioner and the urologist. We have stressed the need for a complete physical and urologic examination of patients with hematuria and have emphasized the fact that chance for permanent cure of cancer of the genitourinary tract, as well as any other system in the body, rests on early diagnosis; diagnosis should be accomplished as soon after the first appearance of hematuria as possible. Finally, we have briefly reviewed the present status of antibiotics in urologic infections.

407 S. 16th St. (Dr. McMartin).

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[10] Pulaski, E. J., and Rosenberg, M. L.: Use of Polymyxin in Gram Negative Urinary Tract Infections, J. Urol. 62: 564, 1949.

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**Exploration During Laparotomy.**—Unless the surgeon is dealing with a septic process, in which case exploration of the uninvolved portion of the abdominal cavity is usually, although not always, contraindicated, careful palpation of the abdominal viscera should be a part of every laparotomy. It adds but a few minutes to the operating time, it may provide information which will avoid a second operative procedure and at times may save that patient's life.—B. P. Colcock, M.D., Routine General Exploration of the Abdomen in All Laparotomies—Incidental Findings, *The Lahey Clinic Bulletin,* October, 1951.

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# CLINICAL NOTES

## FEBRILE HYPERSENSITIVITY TO QUINIDINE GIVEN ORALLY

### REPORT OF TWO CASES

*Benjamin S. Berley, M.D., Kingston, Pa.*
*and*
*Gamliel Saland, M.D., New York*

The unusual toxic reaction to the oral administration of quinidine sulfate manifested by fever has recently received attention in the medical literature. Five cases have been described to date in three reports.[1] However, in three of these five cases there were also skin manifestations to aid in the diagnosis of the drug toxicity. The purpose of this paper is to report two cases of quinidine hypersensitivity manifested only by fever.

### REPORT OF CASES

CASE 1.—S. K., a 45-year-old white man, entered the Bronx Hospital on Oct. 26, 1950 (service of Dr. Abner Stern), with the chief complaints of progressive dyspnea, orthopnea, and weakness of three months' duration. The patient had his first attack of acute rheumatic fever at 11 years of age, with recurrent episodes of rheumatic fever for several years afterwards. Mitral stenosis, auricular fibrillation, and recurrent congestive failure then progressively developed.

Until six months prior to his hospital admission, he received meralluride (mercuhydrin®) sodium injections with good results. But this was discontinued because of marked weakness and dehydration. He had then received digitalin nativelle, 0.2 mg. daily, with ventricular rate remaining between 70 and 88. For the last three months, the patient noted increasing orthopnea, dyspnea, and weakness but without any peripheral edema. Two weeks before admission, the patient experienced paroxysms of nonproductive cough and had several episodes of paroxysmal nocturnal dyspnea.

*Physical Observations.*—Physical examination on admission showed that the patient was well developed and did not appear acutely ill. Rectal temperature was 98 F; the pulse was irregular, with a rate of 44; respirations were 22; and blood pressure was 150/90. The fundi were normal. The neck veins were moderately distended. There was relative dulness to percussion and scattered moist rales at both lung bases. The heart was enlarged to the left and the right. The rhythm was irregular, with a tendency to pulsus bigeminus. Both diastolic and systolic murmurs were heard in the mitral and aortic valve areas. The liver was enlarged to 8 cm. below the right costal margin. The spleen was not palpable.

*Laboratory Data.*—The Wassermann and Kahn reactions were negative. The hemoglobin content was 90% (Sahli). The white cell count was 5,000, with 78% neutrophils. The urine was normal except for a trace of albumin. The blood urea nitrogen was 11.2 mg. per 100 cc. The blood cholesterol was 595 mg. per 100 cc. A roentgenogram of the chest revealed pronounced cardiac enlargement. The heart assumed the shape of a double mitral lesion. The lungs showed no significant abnormalities. An electrocardiogram on the day of admission showed pulsus bigeminus, auricular fibrillation with complete auriculoventricular block, idioventricular rhythm, and unifocal ventricular extrasystoles. The ventricular rate was 40. The day

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From Department of Medicine, The Bronx Hospital, New York (Dr. Harry Wessler, Medical Director).

[1] Sturnick, M. I.: An Unusual Toxic Manifestation of the Oral Use of Quinidine Sulfate: Report of a Case, Am. Heart J. 24: 559 (Oct.) 1942. Siegel, S., and Horn, H.: Quinidine Allergy, ibid. 39: 302 (Feb.) 1950. Stimson, W. H., and McKusick, V. A.: Febrile Reactions to Quinidine, Am. J. M. Sc. 221: 440 (April) 1951.

after admission the venous pressure was 150 mm. of water; with liver pressure applied, it rose to 210 mm. of water. The arm to tongue circulation time with saccharin was 23 seconds, and the arm to lung ether circulation time was 12 seconds.

*Hospital Course.*—The patient was placed on a salt-free diet and was given periodic meralluride injections, with clinical improvement of his cardiac decompensation. The administration of bishydroxycoumarin (dicumarol®) was begun on the 14th hospital day in preparation for quinidine therapy.[2] On the 18th hospital day, fibrillation was present, with a ventricular rate of 110. The electrocardiogram did not reveal any ventricular premature beats. Digitalis was prescribed; however, when 2 cat units of digitalis was given for two successive days, the electrocardiogram showed the reappearance of ventricular premature beats with periods of coupling, so that treatment with digitalis was discontinued. On the 20th hospital day, treatment with quinidine sulfate was started, 0.3 gm. orally every two hours for four doses, after which the individual doses were increased daily.

Suddenly, the evening of the 26th hospital day, the patient's temperature rose, reaching 104 F. The patient complained of pronounced dyspnea and weakness. Physical examination did not reveal anything to account for this reaction. The quinidine sulfate therapy was discontinued. The temperature slowly subsided to normal by the 32nd hospital day. It was clinically felt that this febrile reaction was due to the quinidine sulfate. To verify this clinical impression, we decided to observe the effects of single test doses of quinidine sulfate.

The patient was given 0.5 gm. of quinidine sulfate on the 36th hospital day. The temperature rose abruptly, reaching 104 F in 12 hours, and was associated with a moderate increase in orthopnea. Twenty-four hours later the temperature was normal. Successive daily single doses of 0.10 gm. and 0.13 gm. of quinidine sulfate were given. The temperature rose to 100 F both times, without any increase in orthopnea. For the next two days, single doses of 0.2 gm. and 0.32 gm. of quinidine sulfate were given, succeeded by a rise in temperature to 100.2 F and 100.8 F, respectively, and accompanied by a mild increase in orthopnea. The fifth and final single dose of quinidine sulfate was increased to 0.6 gm. Within 12 hours a temperature of 101.2 F was attained, accompanied by a moderate increase in orthopnea, and, as in each previous test, the temperature returned to normal within 24 hours. Blood cultures taken when the febrile reactions occurred were negative, and the leukocyte count showed no signifi- change from that present at the time of the patient's admis- o the hospital. The patient did not receive any more quin- sulfate and his temperature remained normal. In order to rmine whether cross hypersensitivity existed to the optical mer quinine, the patient was given 0.6 gm. of quinine sulfate orally. No reaction was observed. The patient was discharged improved on the 50th hospital day.

Case 2.—J. M., a 34-year-old white man, was admitted to the Bronx Hospital (service of Dr. Max Weiss) on Sept. 22, 1949, with a history of onset of a right hemiplegia 10 hours before admission. The past history revealed that the patient had had an attack of rheumatic fever at 10 years of age. Auricular fibrillation had been present for at least 11 years. In 1945 he had complete hemiplegia of the right arm and leg, from which he had slowly recovered. In 1947 he had left hemiplegia with facial involvement, which apparently disappeared in three weeks. The morning prior to his admission he was found in bed with right-sided hemiplegia with facial involvement, motor aphasia, and incontinence of urine.

*Physical Observations.*—Physical examination on admission showed that the patient was well developed, well nourished and ethargic. There was right-sided facial paralysis and flaccid paralysis of the right upper and lower extremities. Moist rales were heard over both lung bases. The heart was enlarged to the right and left. A presystolic murmur was heard over the apex and was transmitted to the left axillary region. The cardiac rhythm was grossly irregular on auscultation. The blood pressure was 130/90. The liver and spleen were not palpable. The patellar, ankle, and biceps reflexes were hyperactive on the right. An ankle clonus and a positive Babinski sign were present on the right.

*Laboratory Data.*—The hemoglobin content was 90%. The white blood cell count was 17,000, with 78% neutrophils on differential smear. Urinalysis revealed a trace of albumin. Two blood cultures on admission were sterile. Electrocardiogram showed auricular fibrillation with an occasional ventricular extrasystole. A roentgenogram of the chest revealed decided cardiac enlargement with a configuration of combined mitral disease. The hilar areas were considerably exaggerated, indicating pulmonary congestive changes.

*Hospital Course.*—Bishydroxycoumarin therapy was instituted on the day of admission.[2] On the 11th hospital day treatment with quinidine sulfate was started, 0.3 gm. every three hours for three doses, after which the individual doses were increased daily. On the fifth day of quinidine sulfate therapy, the patient had received a total of two gm. of the drug. Suddenly, that evening, the patient's temperature rose to 102 F. He appeared pale and had pronounced diaphoresis. An electrocardiogram at this time revealed nodal tachycardia, with a rate of 135. Treatment with quinidine sulfate was discontinued. The following morning the temperature was normal. Digitalization was effected with 1.2 mg. of digitoxin over the next 24-hours. An electrocardiogram now showed reappearance of the auricular fibrillation. The patient was then given quinidine sulfate, 0.3 gm. every three hours for five doses, which was continued for eight days. A temperature rise to 101 F the first three days and to 102.6 F the last five days was noted. The patient, however, did not complain. An electrocardiogram on the eighth day of quinidine therapy showed nodal tachycardia, with a rate of 120. Treatment with quinidine sulfate was then discontinued, and the temperature was normal within 24 hours. Blood cultures taken during these temperature elevations were reported sterile. Leukocyte counts and differential smears at the same times showed no essential change from those observed on the patient's admission.

At this time the causal relationship between the administration of quinidine sulfate and the development of fever was noted. To verify this, we gave the patient 0.3 gm. of quinidine sulfate, and the temperature rose to 100.2 F; within 24 hours the temperature returned to normal and then remained normal. In view of this, it was felt that the patient had a febrile hypersensitivity to quinidine sulfate and that further therapy with this drug was not advisable. The hemiplegia gradually improved, with a return of speech; the patient was discharged on the 38th hospital day. At the time of discharge, fibrillation, with a ventricular rate of 70, was present.

## COMMENT

It is common knowledge that patients who have heart disease with fibrillation are subject to embolization with a rise in temperature. These patients are also subject to bacterial endocarditis. Therefore, if a quinidine preparation is given and a rise in temperature occurs, it is important to determine the cause of this rise. In the two cases herein presented, there were no signs of recent embolization, and the blood cultures in each case were negative. Moreover, there seemed to be a causal relationship between the ingestion of quinidine sulfate and the rise in temperature. In addition, a rather prompt return to normal temperature was observed when treatment was discontinued. In case 1 the height of the rise in temperature ssemed to correspond to the increase in the individual dose of quinidine sulfate. It was also noted that, whereas in case 1 there was a febrile reaction to quinidine sulfate, there was no similar response to quinine.

## SUMMARY

Two cases of febrile hypersensitivity to quinidine sulfate administered orally are reported.

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[2] Saland, G.; Frank, S. L.; Stern, A.; and Weiss, M.: Auricular Fibrillation With and Without Embolization, New York State J. Med. 50: 917 (April 1) 1950.

# INEFFECTIVENESS OF HEPARIN BY SUBLINGUAL ADMINISTRATION

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The value of anticoagulant therapy has been well established and needs no elaboration. However, the need for a more nearly ideal anticoagulant substance is acknowledged. The criteria for such a substance have been outlined and include moderate cost, low toxicity, and rapid therapeutic effectiveness when given by mouth.[1] Fischer and Astrup [2] in a study conducted on mice found that heparin administered orally was not absorbed in the alimentary canal and was excreted intact in the feces in approximately two days. Other authors have stated that heparin is not effective orally, but little data has been reported to substantiate this: Jorpes,[3] Murray and associates,[1] and Crafoord [5] advocate the intravenous route exclusively for heparin. Recently the intramuscular and subcutaneous routes have been used more widely. To date other heparin-like substances have been administered parenterally.

TABLE 1.—*Average Clotting Times Following Sublingual Administration of Nine Lots of Heparin*

| Maker | Lot No. | Dose, Mg. | No. Administrations | Time of Determinations | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Control | ½ Hr. | 1 Hr. | 2 Hr. | 4 Hr. |
| Lederle | 7-7950 | 125 | 2 | 7′ | 7′ 30″ | 7′ 30″ | 8′ | 8′ |
| Organon | 253101 | 100 | 2 | 7′ | 7′ | 7′ | 7′ | 7′ 30″ |
| Organon | 253101 | 200 | 1 | 8′ 30″ | 7′ 30″ | 6′ 30″ | 8′ | 5′ |
| Organon | 255101 | 200 | 3 | 8′ 30″ | 9′ | 10′ | 7′ | 10′ |
| Organon | 259101 | 200 | 4 | 9′ | 9′ | 9′ 30″ | 9′ | 8′ 30″ |
| Organon | 258101 | 200 | 1 | 10′ | 10′ | 12′ | 10′ | 11′ 30″ |
| Organon | 250101 | 150 | 1 | 7′ | 6′ | 7′ 30″ | 5′ 30″ | 5′ |
| Organon | 250101 | 200 | 2 | 8′ | 9′ 30″ | 9′ 30″ | 10′ | 8′ 30″ |
| Organon * † | "D" 18-50/19-50 | 125 | 3 | 9′ | 11′ | 13′ | 13′ | ...... |
| Sterling-Winthrop * | BaK-12-130 | 125 | 2 | 10′ | 10′ | 11′ | 11′ | ...... |
| Upjohn | 9505-1 | 400 | 2 | 7′ | 6′ 30″ | 7′ 30″ | 7′ 30″ | ...... |

* Supplied by Dr. Norman Applezweig. † See table 2.

The recent report of Litwins and associates [6] regarding the effectiveness of heparin sodium administered sublingually in doses of 125 mg. was therefore received with considerable interest. We have attempted to confirm these findings, and the results of this study are reported here.

## METHOD

Nine different lots of heparin sodium were obtained from four companies in powdered and pellet form. Control clotting times were obtained, and subsequent determinations were made following administration of heparin at half hour, one hour, two hour, and four hour intervals. Heparin sodium, in amounts varying from 100 to 400 mg., was administered sublingually 23 times to seven normal persons and to seven patients with no clotting abnormalities who were not receiving anticoagulant therapy. In addition, four persons received 100 mg. of heparin sodium (Organon lot number 250101) sublingually or buccally, but complete curves were not obtained. Clotting time tests were performed in the following manner:

After careful venipuncture, the tourniquet was released and 4 to 5 ml. of blood were drawn into a dry 10 ml. syringe. The stop watch was started as blood entered the syringe. One milliliter of blood was placed in each of three dry "pyrex" tubes 10 mm. in diameter. Each tube was tipped gently at 30 second intervals beginning 3 minutes after blood had entered the syringe. The test was ended when the blood no longer flowed from its position and maintained its surface contour on complete inversion of the tube. By this method the average clotting time in 14 determinations on eight normal subjects was 8 minutes and 30 seconds, with a range from 6 minutes and 30 seconds to 10 minutes and 30 seconds.

## RESULTS

The results obtained following sublingual administration of various preparations of heparin are presented in table 1. It will be noted that following doses of from 100 mg. to 400 mg. of heparin there was no prolongation of clotting time to within the so-called therapeutic range (20 to 35 minutes).[6] In three instances the half hour clotting time was shorter than the initial time, and on three occasions the four hour times were shorter than the control figure. These findings probably represent variations within the limit of error of the technique. Following sublingual administration of heparin (Organon lot number "D" 18-50/19-50) to three persons there was a slight elevation of clotting time, but at no time did it approach an effective therapeutic level. In two of these subjects, following administration of this same heparin (table 2) at the time the two hour specimen was obtained, 10 mg. of heparin (liquaemen®) sodium was injected intravenously. This small amount of heparin (⅕ to ⅒ of the usual parenteral dose) given intravenously produced a

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The Lederle Laboratories Division of the American Cyanamide Co., Organon, Inc., Sterling-Winthrop, The Upjohn Company, and Dr. Norman Applezweig supplied the heparin used in this study.

[1] Wright, I. S.: Use of the Anticoagulants in Treatment of Diseases of Heart and Blood Vessels, Ann. Int. Med. 30: 80, 1949.

[2] Fischer, A., and Astrup, T.: On the Administration of Heparin Per Os, Proc. Soc. Exper. Biol. & Med. 42: 81, 1939.

[3] Jorpes, J. E.: On the Dosage of the Anticoagulants, Heparin and Dicumarol, in Treatment of Thrombosis, Acta chir. scandinav. (supp. 149) vol. 100, 1950, p. 476.

[4] Murray, D. W. G.; Jacques, L. B.; Perrett, T. S., and Best, C. H.: Heparin and the Thrombosis of Veins Following Injury, Surgery 2: 163, 1937.

[5] Crafoord, C.: Heparin and Post-Operative Thrombosis, Acta chir. scandinav. 82: 319, 1939.

[6] Litwins, J.; Vorzimer, J. J.; Sussman, L. N.; Applezweig, N., and Eteso, A. D.: Sublingual Administration of Heparin, Proc. Soc. Exper. Biol. & Med. 77: 325, 1951.

significant prolongation of the clotting time. On four additional occasions subjects were given 100 mg. of heparin via the sublingual or buccal route, and, although complete curves were not made, in the determinations made there was no prolongation of clotting time. The slight prolongation of time obtained with the one sample (Organon sample "D") may represent some absorption of the heparin across the buccal membrane.

One other apparently normal person, whose clotting times are not included in table 1, received on two occasions 125 mg. and 120 mg. of heparin sodium (Organon sample "D") sublingually. The clotting times were variable in both control and subsequent tests at the time 125 mg. were administered. A repeat test was therefore conducted using 120 mg. heparin. The control at this time was 11 minutes and 30 seconds; the 30 minute and 1 hour determinations could not be duplicated, the range being from 11 minutes to 18 minutes in the 30 minute determinations, and 11 to 25 minutes in the 1 hour determinations. Subsequent determinations agreed within two and one-half minutes. Antithrombin levels determined by the method described by Quick [7] did not increase after sublingual administration of heparin. These studies on this person demonstrate again the variability in the results obtained in coagulation time determinations, which has been emphasized by Quick [8] and Dameshek.[9]

TABLE 2.—*Comparison of Clotting Times Following Sublingual and Intravenous Administration of Heparin*

| | Clotting Time | |
|---|---|---|
| Time of Determination * | Case 1 | Case 2 |
| Control | 9′ | 9′ |
| ½ hr. | 8′ 30″ | 12′ 30″ |
| 1 hr. | 12′ | 14′ 30″ |
| 2 hr. | 12′ | 15′ |
| 20 min.† | 17′ | 22′ |

* Following sublingual administration of 125 mg. of heparin sodium (Organon lot number "D" 18-50/19-50).

† Following intravenous administration of 10 mg. of heparin (liquaemin®) sodium (Organon lot number 509250).

### SUMMARY AND CONCLUSIONS

Heparin was administered sublingually 29 times to 15 persons. Nine different lots of heparin from four pharmaceutical companies were studied. The results of the sublingual administration of heparin from the lots tested were unpredictable. In some instances the clotting times were slightly shortened and in others slightly prolonged. The prolongation of the clotting time was not sufficient to be of therapeutic significance. The very small dose of 10 mg. of heparin intravenously produced a readily detectable prolongation of clotting time. We are unable to confirm the findings of Litwins and associates regarding the effectiveness of the sublingual administration of heparin preparations now available.

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7. Quick, A. J.: Normal Antithrombin of the Blood and Its Relation to Heparin, Am. J. Physiol. **123:** 712, 1938.

8. Quick, A. J.; Honorato, C., and Stefanini, M.: Value and Limitations of Coagulation Time in Study of Hemorrhagic Diseases, in the George R. Minot Symposium on Hematology, edited by W. Dameshek and F. H. L. Taylor, New York, Grune & Stratton, Inc., 1949, p. 400.

9. Estren, S.; Sanchez Medal, L., and Dameshek, W.: Pseudohemophilia, Blood **1:** 504, 1946.

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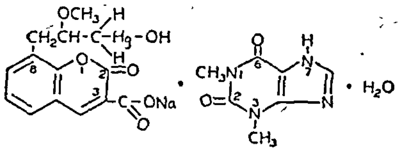
# COUNCIL ON PHARMACY AND CHEMISTRY

## NEW AND NONOFFICIAL REMEDIES

*The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.*

R. T. STORMONT, M.D., *Secretary.*

**Mercumatilin Sodium.**—Cumertilin Sodium (Endo).—Sodium 8-(2′-methoxy-3′-hydroxymercuripropyl) coumarin-3-carboxylate (sodium mercumallylate) and theophylline.—$C_{14}H_{13}HgNaO_6.C_7H_8N_4O_2.H_2O$.—M.W. 699.03.—Mercumatilin sodium consists of sodium mercumallylate (the mercuri compound, $C_{14}H_{13}HgNaO_6$, mol. wt. 500.85) and of theophylline-U.S.P. in approximately molecular proportions. It is prepared by adding just enough sodium hydroxide solution to mercumatilin to effect solution. The salt is not isolated. An excess over 1 mole of theophylline may be added. The structural formula of mercumatilin sodium may be represented as follows:



*Actions and Uses.*—Mercumatilin sodium produces the same diuretic effect as other mercury-theophylline compounds, from which it differs slightly only in chemical structure. Its injection causes local irritation similar to that produced by the other organic mercurial diuretics which are suitable only for intramuscular or intravenous injection. See also general statement on Mercury Compounds.

*Dosage.*—Mercumatilin sodium is administered intravenously, or preferably intramuscularly. An initial dose of not more than 0.5 cc. (containing 132 mg. per 1 cc.) is recommended. Unless there is idiosyncrasy the subsequent average dosage recommended is 2 cc. intramuscularly, or 1 to 2 cc. intravenously, at biweekly intervals. Shorter or longer intervals may be used in accordance with the degree of edema or dehydration present. Injections should be made at different sites to avoid undue local irritation. Mercumatilin sodium should be employed with the same precautions as observed with other mercurial diuretics.

*Tests and Standards.*—

For description and standards for theophylline, see the U. S. Pharmacopeia under Theophylline.

*Mercumallylic Acid* ($C_{14}H_{14}HgO_6$, M.W. 478.86) used in the preparation of mercumatilin sodium responds to the following tests and standards.

*Physical Properties:* Mercumallylic acid is a white, odorless powder with a bitter taste. It melts with decomposition at about 190°. One gram dissolves in about 4.2 parts of sodium hydroxide T.S. It is slightly soluble in acetic acid; very slightly soluble in alcohol, chloroform and water; and practically insoluble in ether.

*Identity Tests:* Suspend about 0.5 gm. of mercumallylic acid in 5 ml. of water contained in a small flask. Add 5 ml. of formic acid and reflux the mixture for 15 min. Decant the hot supernatant solution through a small filter paper and allow the filtrate to cool in ice-water. Dissolve the grayish precipitate that remains in the bottom of the flask in a few drops of hot nitric acid. The solution responds to the test for mercury in *U. S. P. XIV*, page 722. Collect the crystals, which form in the filtrate, on a small filter paper. Wash the crystals with four 5 ml. portions of cold water, allow them to drain and dry them at 105° for 2 hours: the cumallylic acid (8-allyl-coumarincarboxylic acid) obtained melts between 147 and 150°.

*Purity Tests:* Dissolve about 0.5 gm. of mercumallylic acid in 15 ml. of 0.1 *N* sodium hydroxide. Filter and add 2 drops of sodium sulfide T.S. to the filtrate: no precipitate or color is produced immediately *(absence of mercuric ions).*

Transfer about 0.5 gm. of mercumallylic acid to the thimble of a Soxhlet extractor and extract it with acetone for 4 hours. Transfer the acetone extract to a tared weighing bottle, evaporate it to dryness on a steam bath in a current of warm air and finally dry it at 105° for 2 hours: the amount of residue is not more than 2.5%.

Dry about 1 gm. of mercumallylic acid, accurately weighed, at 105° for 4 hours: *the loss in weight is not more than 5.0%.*

Char about 1 gm. of mercumallylic acid, accurately weighed. Cool, add a few drops of sulfuric acid to the charred mass and ignite: the amount of residue is not more than 0.05%.

*Assay:* (Mercury) Transfer about 0.1 gm. of mercumallylic acid, accurately weighed, and previously dried at 105° for 4 hours to a 100 ml. round-bottomed flask with a standard-taper joint. Add 10 ml of water; 10 ml. of a 2:2:1 mixture of triethanolamine, xylene and *n*-butanol; 2 ml. of 50% sodium hydroxide; 0.25 gm. of zinc dust and several boiling stones. Attach the condenser and place the flask on an asbestos board with a hole about 50 mm. in diameter. Reflux the material gently over a small flame for about 30 min., or until an amalgam separates. Cool the flask, add 3 to 5 ml. of glacial acetic acid and continue heating until the amalgam agglomerates. Cool the mixture to about 50° and rinse the condenser and the neck of the flask with 5 to 10 ml. of alcohol, collecting the rinsings in the flask. Decant the solution through a Gooch crucible and wash the amalgam remaining in the flask with four 5 ml. portions of alcohol and then with three 5 ml. portions of water, pouring all washings through the crucible. Quantitatively transfer the pad and metallic residues in the crucible to the flask, rinsing with water to complete the transfer. Add about 8 ml. of nitric acid and reflux by direct heat until solution is complete. Cool the solution to about 70° and rinse the condenser with water. Disconnect the condenser and to the hot solution add 5% potassium permanganate dropwise until the purple color persists. Cool to room temperature, with water adjust the volume to about 80 to 90 ml. and just discharge the color with hydrogen peroxide T.S. Titrate with 0.02 *N* ammonium thiocyanate, using 2 ml. of ferric ammonium sulfate T.S. as an indicator. Each milliliter of 0.02 *N* ammonium thiocyanate is equivalent to 0.002006 gm. of mercury and 0.004789 gm. of mercumallylic acid. The amount of mercury present is not less than 39.8 nor more than 43.1%, equivalent to not less than 95.0 nor more than 103.0% of mercumallylic acid.

**Dosage Forms of Mercumatilin Sodium**

SOLUTION. *Identity Tests:* The solution responds to the identity tests in the section on mercumallylic acid in the monograph for Mercumatilin Sodium. Retain the final filtrate from these tests for the following identity test: Heat the filtrate and washings to boiling and pass hydrogen sulfide into the solution for 10 min. Filter the mixture, cool the filtrate and transfer it to a 125 ml. separatory funnel. Add 10 gm. of sodium acetate and extract with three 10 ml. portions of chloroform. Evaporate the combined chloroform extracts nearly to dryness on a steam bath and complete the drying in a current of warm air. Suspend the residue in 5 ml. of water, heat to boiling to dissolve the residue and filter the hot solution. Cool the filtrate in an ice-bath. Remove the crystals by filtration, wash them with water and dry them at 105° for 4 hours: *the theophylline melts between 270 and 275°,* and responds to identity tests for theophylline, *U. S. P. XIV,* page 621.

*Purity Tests:* To 2 ml. of the solution add 5 drops of sodium sulfide T.S.: no color deeper than yellow is produced and no precipitate forms *(absence of mercuric ions).*

*Assay:* (Mercury) Transfer to a 100 ml. round-bottomed flask an amount of the solution, accurately measured, equivalent to about 0.132 gm. of mercumatilin. Proceed as directed in the assay for mercury in the section on mercumallylic acid in the monograph for Mercumatilin Sodium starting with, "Add 10 ml. of water . . ." Each milliliter of 0.02 *N* ammonium thiocyanate is equivalent to 0.00699 gm. of mercumatilin sodium. The amount of mercumatilin sodium present is not less than 94.0 nor more than 106.0% of the labeled amount.

(Theophylline) Transfer to a 250 ml. Erlenmeyer flask a volume of the solution, accurately measured, equivalent to about 0.2 gm. of theophylline. Add 40 ml. of water, followed by 8 ml. of ammonia T.S. Add about 20 ml. of 0.1 *N* silver nitrate and heat the mixture on a steam bath for 20 min., or until the precipitate coagulates. Cool the mixture and filter it under reduced pressure through a filtering crucible. Wash the flask and precipitate with small portions of water until the washings show no turbidity with diluted hydrochloric acid. Dissolve the precipitate with a few 5 ml. portions of hot dilute nitric acid (1:4) and wash the filter crucible well with small portions of water. Cool the filtrate, and titrate with 0.1 *N* ammonium thiocyanate, using 2 ml. of ferric ammonium sulfate T.S. as as indicator. Each milliliter of 0.1 *N* ammonium thiocyanate is equivalent to 0.01982 gm. of theophylline ($C_7H_8N_4O_2.H_2O$). The amount of theophylline present is not less than 94.0 nor more than 106.0% of the labeled amount.

*Solution Cumertilin Sodium:* 1 cc. and 2 cc. ampuls. An aqueous solution containing 0.132 gm. of mercumatilin sodium, (equivalent to 39 mg. of mercury) and 11 mg. of excess theophylline in each cubic centimeter. Endo Products, Inc., Richmond Hill, N. Y.

**Terramycin Hydrochloride.**—Two empirical formulas have been considered for terramycin dihydrate: $C_{22}H_{24}N_2O_9.2H_2O$ and $C_{22}H_{26}N_2O_9.2H_2O$ [Regna and Solomons, *Ann. N. Y. Acad. Sci.* 53:233 (1950)]. The molecular weight of terramycin may be taken as 461 and of terramycin hydrochloride as 498, based on the average of the two empirical formulas.

*Actions and Uses of Terramycin Hydrochloride appear in New and Nonofficial Remedies 1951, and were published in* THE JOURNAL *of May 19, 1951, p. 254.*

*Tests and Standards.*—

*Physical Properties:* Terramycin hydrochloride is a yellow, crystalline, odorless powder with a bitter taste. It melts with decomposition between 190 and 194°. It is very soluble in water, soluble in alcohol, sparingly soluble in acetone, slightly soluble in chloroform, and very slightly soluble in benzene and ether. The pH of a 1% solution of terramycin hydrochloride is about 2.5.

*Identity Tests:* To about 25 mg. of terramycin hydrochloride dissolved in 5 ml. of water, add 1 drop of ferric chloride T.S.: a dark reddish brown color appears immediately.

To about 25 mg. of terramycin hydrochloride dissolved in 2 ml. of water, add about 2 ml. of alkaline cupric tartrate T.S. and heat the solution: a reddish brown precipitate of copper forms *(presence of reducing groups).*

To 25 mg. of terramycin hydrochloride dissolved in 5 ml. of water, add 2 drops of Molisch's reagent (5% $\alpha$-naphthol in alcohol). Carefully underlay the solution with 3 ml. of sulfuric acid: a reddish brown color appears at the liquid interface.

To 25 mg. of terramycin hydrochloride dissolved in 5 ml. of water, add enough sodium hydroxide T.S. to make the solution alkaline to litmus and add a few drops of diazobenzene sulfonic acid T.S.: the solution turns red.

The specific rotation, $[\alpha]25,D$, of a 1.0% solution of terramycin hydrochloride in 0.1 *N* hydrochloric acid is —196 ±4°.

Dissolved in Clark and Lubs buffer having a pH of 2.0 (*U. S. P. XIV,* p. 971) and using the buffer as a blank, *terramycin hydrochloride shows* ultraviolet absorption maxima at 2690 and 3530 Å, minima at 2320 and 2990 Å, and a slight change in slope at about 3130 Å. The ratio of absorbancies at 2690 and 3530 Å = 1.35 ± 0.03. At 3530 Å, the specific absorbancy, E(1%, 1 cm.), is 284 ± 6 for terramycin hydrochloride and *306 ± 6 for terramycin.*

*Purity Tests:* Dry about 0.5 gm. of terramycin hydrochloride, accurately weighed, at 105° for 2 hours: the loss in weight is not more than 2.0%.

Using a sample of about 0.1 gm. of terramycin hydrochloride dissolved in 10 ml. of water, determine the amount of heavy metals present by means of the dithizone test for lead *(U. S. P. XIV,* p. 702): the color developed is of no deeper shade of violet than that of a control corresponding to 25 ppm. of lead.

Char about 0.5 gm. of terramycin hydrochloride, accurately weighed. Cool and moisten with 2 ml. of sulfuric acid and ignite to constant weight: the ash is not more than 0.25%.

*Assay:* (Terramycin) Accurately weigh about 50 mg. of terramycin hydrochloride into a 200 ml. volumetric flask and dilute to the mark with Clark and Lubs buffer having a pH of 2.0 *(U. S. P. XIV,* p. 971). Mix well and transfer 5 ml. of the solution to a 100 ml. volumetric flask and dilute to the mark with the buffer. Determine the absorbancy of the final solution (0.001%) at 3530 Å with a suitable spectrophotometer, using the Clark and Lubs buffer as a blank. The concentration of the final solution in mg./ml. = absorbancy at 3530 Å ÷ 30.6. The amount of terramycin present is not less than 89.0 nor more than 96.4%.

(Biological) Terramycin hydrochloride is also assayed with the same test organism and media as recommended by the Antibiotic Division of the U. S. Food and Drug Administration for the turbidimetric assay of streptomycin (*Federal Register,* 10/28/48, Sec. 141.101, par. J).

**Dosage Forms of Terramycin Hydrochloride**

CAPSULES. *Identity Tests:* The capsules respond to the identity tests in monograph for Terramycin Hydrochloride.

*Assay:* (Terramycin) Determine the average weight of the contents of 20 capsules. Accurately weigh a sample equivalent to about 50 mg. of terramycin and proceed with the spectrophotometric assay as directed in the monograph for Terramycin Hydrochloride. The amount of terramycin present is not less than 85.0 nor more than 115.0% of the labeled amount.

POWDER. *Identity Tests:* Terramycin hydrochloride is supplied as a solid or a mixture of solids to which an appropriate diluent is added before use to prepare the elixir, intravenous injection, oral drops, and ophthalmic solution. These powders respond to the identity tests in the monograph for Terramycin Hydrochloride.

*Assay:* (Terramycin) Determine the average weight of the contents of 4 vials of the dosage form under consideration. Accurately weigh an amount of the powder equivalent to 50 mg. of terramycin and proceed with the spectrophotometric assay as directed in the monograph for Terramycin Hydrochloride. For the elixir, intravenous injection, oral drops, and ophthalmic solution the amount of terramycin present is not less than 85.0 nor more than 115.0% of the labeled amount.

OINTMENT. *Identity Tests:* The solution prepared for the assay of the ointment responds to the spectrophotometric data given under identity tests in the monograph for Terramycin Hydrochloride. Use Clark and Lubs buffer (pH = 2.0) equilibrated with ether as the blank.

*Assay:* (Terramycin) Determine the average weight of the contents of 3 tubes. Transfer an accurately weighed amount of ointment equivalent to about 1 mg. of terramycin into a 250 ml. separatory funnel with the aid of about 75 ml. of ether. Extract the ether layer once with exactly 100 ml. of Clark and Lubs buffer, pH = 2.0 (*U. S. P. XIV,* p. 971). Measure the light absorbancy of a portion of the buffer layer at 3530 Å in a suitable spectrophotometer, using the buffer equilibrated with ether as a blank. The concentration of the final solution in mg./ml. = absorbancy at 3530 Å ÷ 30.6. The amount of terramycin present is not less than 85.0 nor more than 115.0% of the labeled amount.

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## USE AND ABUSE OF MILK IN DIET OF CHILDREN

For many years pediatricians have declared that the excessive use of milk to the exclusion of other good foods is inconsistent with good growth and development. This is not the fault of milk, per se, but in a diet in which the caloric requirement is met chiefly by milk there is an absence of other foods essential to normal growth. Children with normal dietary habits eat a variety of wholesome foods and do not depend mainly on milk to satisfy their appetites.

There are a number of reasons, well known to experienced pediatricians, to explain why some children develop the habit of drinking milk in excess of normal requirements. These reasons include the reliance of parents on the false notion that if a child drinks enough milk his nutrient requirements are fulfilled, failure to make use of the simple basic knowledge that a variety of good food is essential to good nutrition, the lack of parental interest or oversolicitude concerning the importance of good eating habits, incomplete or erroneous knowledge of how to prepare food for a child, and poor mental hygiene at mealtime.

While a profound knowledge of the nutrient contribu-
n of milk is essential to the specialist, a basic knowl-
ge of its place in the diet is all that is necessary at the
amily level. Somewhere between a pint and a quart of milk a day is useful and generally recommended for children. Adolescents often demand and may even benefit from the use of more than a quart of milk per day during the period when their appetites are great and their development rapid. The development of family attitudes in which the eating of all foods is considered a pleasure and not a duty is helpful in establishing good eating habits. These facts, together with the knowledge that a variety of food is essential to good growth and health, should prevent families from falling into faulty eating patterns including the misuse of milk.

P. C. Jeans, in the *Handbook of Nutrition* of the Council on Foods and Nutrition, states, "Milk should not be considered solely as a source of calcium. It contributes most importantly to the requirement for protein as well as other essentials. During the period when the calcium requirement is lowest the requirement for protein is high. Consequently, it seems preferable to advise at least one and one half pints of milk after the period of infancy and up to the age of 10 years. The taking of a full quart throughout this period can be considered only as beneficial, provided the larger quantity does not crowd from the diet other essential foods. The fear or belief that the larger quantity may have this effect is widely prevalent but not too well founded, especially for those children who have normal appetites. It is true that in some instances psychological reasons arise for giving the smaller quantities of milk mentioned as meeting the calcium requirement. In such instances the protein requirement can be met with other protein foods, such as meat and eggs."

Jeans also states: "In meeting the protein requirement, one should place emphasis on the value of milk. A quart of milk daily supplies most of the protein need of the young child and half the need at the beginning of adolescence. Such a quantity of milk contributes more protein to the diet than any other single food. When milk is excluded from the diet, the protein requirement of the child can be met only if special and expert supervision is given." Milk is one of the most important parts of the diet for infants and children. However, like all foods, it must be wisely used. Milk should be a part of the diet of all infants and children; on the other hand, it cannot be used as the sole source for food, except when specifically prescribed during certain treatment regimens.

## CONTROL OF BARBITURATES

At the present time there is a movement afoot to draft
legislation that would provide more extensive federal
regulatory controls over the sale and distribution o
barbiturates. One of the legislative proposals would in-
volve a licensing or registration provision for physician
who prescribe or dispense these drugs. Apparently th
suggestion for such proposed legislation comes fron
within the Federal Security Agency.

The recently enacted Durham-Humphrey amendmen
to the Federal Food, Drug and Cosmetic Act should pro
vide adequate safeguards against the illegitimate dis
tribution and sale of barbiturates that move in interstat
commerce. The new amendment specifically prohibi
pharmacists from selling dangerous drugs such as barbi
urates over the counter; furthermore, refilling of a pr
scription for a drug that cannot be used safely by t
laity in self-medication is a violation of the law unle
the pharmacist has express authorization from the ph
sician to do so. There is need for at least a comparab
strengthening of all state and local laws insofar as intr
state traffic in barbiturates and other dangerous drugs
concerned to obviate any need for more stringent contr
in this field by the federal government.

Barbiturates are valuable drugs that are used exte
sively in medical practice; however, sensational artic
in lay publications have portrayed these therapeu
agents as a most evil drug menace. It is true that "slee
ing pills" are not infrequently used by the laity to comn
suicide. Psychopathic persons and other persons wi
unstable personalities seeking a "thrill" or a means
escaping from reality are known to misuse barbiturat
however, the great majority of practicing physici
recognize the dangers attending possible misuse of th
drugs and are careful to prescribe them only in quanti
sufficient to meet the legitimate medical needs of
particular patient.

Legislation providing a federal licensing or registration system of control over the prescribing or dispensing of the barbiturates by physicians is unnecessary and would set a dangerous precedent. The Federal Security Agency, through the Food and Drug Administration, might well attempt to extend this type of control to cover all drugs having any significant potentiality for harm. By this means, the Administrator of the Federal Security Agency ultimately could attain the power to dictate in large measure the practice of medicine in this country.

The Committee on Legislation of the American Medical Association has considered legislation for the control of barbiturates and does not believe licensing of physicians to prescribe such drugs is necessary or desirable. It believes that the problem of the promiscuous sale and use of barbiturates can be solved by other measures. One of these requires the help of those members of the medical profession who erringly prescribe too many tablets or capsules at one time. They are not serving the best interests of their patients or of their profession, when they resort to such careless practices. Careful control by physicians should be exerted over their own prescribing habits, over the habits of office assistants who may be tempted to dispense barbiturates without their knowledge, and even over careless ordering for patients in hospitals.

## POTASSIUM AND PROTEIN SYNTHESIS

For the fabrication of protein it is necessary to have all the essential components of a particular tissue; this means that, in addition to the required amino acids, the necessary inorganic salts must be available. Among the various inorganic substances that are intimately connected with protein tissues, potassium has been investigated actively in recent years. It has been known that in the fasting animal both potassium and nitrogen are excreted in the urine in the ratio of 1 to 10. Also, other investigations have shown that it is possible in the case of human subjects to roughly calculate nitrogen balance from potassium balance.

Recently Cannon and associates [1] have investigated the relationship between nitrogen storage and potassium. Using the rat repletion method developed in the University of Chicago laboratories these investigators found that animals that were given potassium chloride in addition to the basal ration, which was deficient in potassium, grew at a greater rate than the controls, which did not receive the inorganic supplement. It should also be noted that the animals that received the potassium had better appetites and consequently consumed greater amounts of food. In a second series of studies attempts were made to maintain the two groups of animals on equal caloric levels of energy intake. Again it was found that there was less growth in the potassium-deficient animals. Twenty milligrams of potassium chloride per day would meet the requirements of the rat for this element. Excessive amounts of the salt did not appear to increase the weight gain of the animals.

A further study was carried out with two different types of protein hydrolysates prepared commercially for parenteral administration. Animals that received the amino acid preparations orally plus additional amounts of potassium showed increased growth as compared with those animals on a similar diet, but lacking potassium. The fact that the amino acid preparations that were adequate nutritionally, because of both the amount and the distribution of utilizable nitrogen, produced poor growth in animals on potassium-deficient diets has some significance in parenteral feedings where in many cases only amino acids and carbohydrate are commonly administered to meet the nutritional needs of the patients.

## SMOKER'S LARYNX

Attention has recently been directed by Myerson [1] to a lesion of the vocal cord caused by irritation due to excessive smoking. This observation is based on a series of 143 patients, ranging in age from 16 to 69 years, and including 129 men and 14 women. Except for three persons who were cigar smokers, the entire group smoked from 20 to 120 cigarettes daily. The diagnosis of smoker's larynx was based on a history of excessive smoking and the appearance of one or more lesions on the vocal cords.

The earliest change that can be detected by laryngeal examination is that of localized edema of part of a vocal cord, but, at a later date, the edema is replaced by an edematous fibroma. These fibromas vary in size and shape and are influenced not only by the duration of the lesion but by the intensity of exposure to irritating factors inherent in the smoking process. Ordinarily, the initial lesion of the vocal cord is relatively small, rarely occupying more than one-half of the anterior two-thirds of the structure; however, should the smoker continue smoking, multiple tumor masses involving both vocal cords are likely to ensue.

Varying degrees of hoarseness and vocal fatigue are usual clinical manifestations of smoker's larynx. In general, the longer the period of smoking, the firmer the growth of the tumor and the hoarser the smoker. Complete cessation of smoking is an effective measure only during the early stages of edema of the vocal cord. If the lesion does not show pronounced improvement after 24 hours of abstinence from smoking, it can be considered permanent, in which case treatment requires removal of the tumor by surgical means.

These findings are of general interest to the medical profession particularly in view of current cigarette advertising campaigns, which utilize extensive mass means of communication to emphasize claims for irritation-free qualities of cigarettes in terms of their effect on the human voice. To extol the virtues of the advertised brands, actors, musical comedy stars, opera singers, and others ascribe to their brand of cigarette an innocuous effect on their laryngeal structures. Whatever the smoking habits of these singers and actors may be, it is unlikely that they are aware of the published description of lesions of the vocal cord caused by irritation due to excessive smoking, nor are they in a position to judge scientifically the effects of smoking on the body.

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[1] Cannon, P. R.; Frazier, L. E., and Hughes, R. H.: Influence of Potassium on Tissue Protein Synthesis, Metabolism 1:49, 1951.

[1] Myerson, M. C.: *Smoker's Larynx: A Clinical Pathological Entity,* Ann. Otol. Rhin. & Laryng. 59:541, 1950.

# THE PRESIDENT'S PAGE

## A MONTHLY MESSAGE

The term public relations has many definitions. My own conception of the term might be expressed, "*the opinion that the majority of the public holds concerning some segment of society or the organization representing it.*" The public relations of the American Medical Association, in my opinion, are the sum total of what Americans think about our Association. Using this definition, it is obvious that public relations can be either good or bad, or can be nonexistent, in those instances where people know nothing of our organization.

It is certain that many more persons know something about the American Medical Association today than was true five years ago. I believe that our public relations *have improved greatly during this period, and this is* because the A. M. A. has developed a more active and more positive program and because we have been telling our story to the people.

In this President's Page I would like to describe for you how our Association's public relations program is conceived and carried out, with particular emphasis on the work of our Department of Public Relations. The responsibility for determining the A. M. A.'s public relation policies, as well as all other A. M. A. policy, lies with the House of Delegates. Between meetings of the House, this responsibility is assumed by the Board of Trustees, subject always to approval by the House at its next session. Since public relations in- ludes all actions of the Association that ect the public, it obviously involves lmost the entire A. M. A. program. This is why public relations policy must be decided at the top level. Practically speaking, determination of PR policy means that the House of Delegates and the Officers and Trustees consider all A. M. A. projects in the light of their effect on the public as well as on the profession.

Speaking generally, it is the belief of the Association that the only basis for a sound PR program is right action. If the A. M. A. does not make its decisions in the public interest, it can employ all the "high-powered" PR experts in the country to paint a favorable picture of its activities and they will not be successful. You cannot sell a product if it is not a good one. (In justice to PR professionals, I might add that none of them worthy of the name would accept a position with an institution that did not subscribe to this philosophy.)

Once public relations policy has been determined by the House of Delegates, it is necessary to have a staff agency that coordinates PR activities and focuses attention on the Association's public relations goals. This function is assigned to the Department of Public Relations.

In 1948, when Mr. Truman was reelected and socialized medicine appeared to be just around the corner, this Department was barely a year old, had a small staff, and was inexperienced in fighting national legislation. The Board of Trustees therefore decided to employ a public relations firm that had had experience in campaigning against socialized medicine. They selected Whitaker and Baxter, the firm that had directed the California Medical Association's successful battle. Whitaker and Baxter were given two specific assignments: (1) to defeat compulsory health insurance and (2) to promote voluntary health insurance. You are all familiar with the strong campaign they organized at the grass roots, which has resulted in the temporary defeat of compulsory health insurance legislation and contributed significantly to the growing sentiment against socialism. You are equally familiar *with the mushrooming growth of voluntary health insurance, due in part to the promotional activities of the* National Education Campaign. Whitaker and Baxter now *are retained on a half-time basis to assist the Association in resisting the attacks of the socializers, who continue actively to promote their schemes in many areas of medicine.*

Organizationally, Whitaker and Baxter operate as an independent firm. They report directly to the A. M. A. Campaign Coordinating Committee, which is composed of four members of the Board, three members of the House of Delegates, the President, Past-President, President-Elect, and Secretary and General Manager.

The American Medical Association's Department of Public Relations is responsible for coordinating all other PR activities of the Association. Administratively, *it functions as a branch of the* Secretary's Office. While it conducts *certain projects of its own, much of its* work consists of advising and assisting *other A. M. A. Councils and Bureaus and state and county medical societies with medical public relations* The Executive Committee of the Board comprises the Association's Public Relations Committee, which directs the policy of the Department. In addition, a committee *of executive secretaries and public relations directors o state medical societies meets periodically to advise the* Director, with particular emphasis on PR techniques and *problems at the state and county level.*

The Department's work has three general aims: 1 Telling the story of the A. M. A. *and the medical pro* fession to the public through the use of various media o communication. 2. Encouraging the development o sound public relations practices on the part of A. M. A Councils and Bureaus and on the part of state and count medical societies and individual physicians. In this con nection it provides information on successful PR project and attempts to coordinate public relations activities a the various levels of organized medicine so that they ar focused on similar goals and duplication of effort i avoided. 3. Assisting the Officers, Trustees, and th Secretary and General Manager in their continuing jo of keeping the membership informed regarding the activities of the Association.

To tell the A. M. A.'s story to the public, the Department issues a weekly news release, which goes to wire services, newspapers, magazines, and science writers in all parts of the country. It includes both scientific and Association news. This release is the basis for many of the authentic scientific stories that you see printed in the press and in news magazines. At the time of the A. M. A. Annual and Clinical Sessions, the Department issues special releases based on scientific papers to be delivered at the meetings. To give you an idea of the scope of this work, the Department mails over 50 different releases in advance of each annual meeting. In addition, a press room is maintained in the convention city to service between 60 and 80 newspaper and magazine reporters who regularly cover our A. M. A. sessions. Publicity for A. M. A. special conferences, such as those on Rural Health, Industrial Health, Civil Defense, and Medical Education, is also handled by this department.

A day-by-day service to magazine writers and editors is maintained. The Department assists in the preparation of manuscripts by collecting material and arranging interviews with medical authorities. On request it reviews completed manuscripts for accuracy. (These are checked by physicians on the A. M. A. staff.) It is the PR Department that handles mailings of magazine reprints to physicians for distribution to the public through their offices and mailings to opinion leaders in other organizations. Pamphlets are also prepared for the general public. The most recent was "A Doctor for You." This year, two pamphlets on the cost of sickness are scheduled, as well as one on the A. M. A., and one on the Principles of Medical Ethics, to be titled "The Code Your Doctor Lives by." The Department cooperates with the Bureau of Health Education, the Bureau of Exhibits, and the Committee on Medical Motion Pictures, in using the media of radio, television, exhibits, and films to tell the profession's story.

To me, one of the most important aspects of the Department's work is promotion of the many sound public relations projects developed within the Association. Examples of activities that have been encouraged in cooperation with other Councils include the establishment of grievance committees, 24-hour night and emergency telephone answering systems, school and rural health programs, local health councils, press-radio codes of cooperation and special committees within societies to handle press relations, "health days" or "health fairs" sponsored by medical societies or auxiliaries, medical society speaker's bureaus, medical economic bureaus, radio programs, and active participation by physicians in community affairs. There are others, but space does not permit a complete listing.

Recently the Department has put special emphasis on what is certainly one of the profession's principal PR problems: the cost of sickness. At the suggestion of leaders of the A. M. A., the Department developed a plaque to be displayed prominently in physicians' offices. It reads, "To My Patients—I invite you to discuss frankly with me any questions regarding my services or my fees. The best medical service is based on a friendly mutual understanding between doctor and patient." You have no doubt seen these plaques advertised in medical journals. Perhaps you have already purchased one for your office. This is part of a concerted effort by the A. M. A. to encourage physicians to discuss finances with their patients. Such discussion provides an opportunity to explain health insurance, the cost of drugs, and such extra charges as consultant's fee, charges for anesthesiology and radiology, and private nursing costs. Our campaign is based on the discovery by grievance committees that most fee complaints result, not from overcharging, but from misunderstandings that could have been prevented easily if the physician had taken time to discuss charges with his patient. Attention is also being given to the PR factors in bill collecting, office management, and the training of office personnel.

How does the Department promote these various projects? It sponsors an annual National Conference on Medical Public Relations, which is attended by representatives from every state medical society. It issues a bimonthly newsletter called "PR Doctor," which is packed with case histories of successful medical public relations projects. State societies and large county societies receive an accompanying packet of sample materials. One of the most important methods for pushing these ideas is through the Department's Field Service. A field service director is on the road almost constantly visiting state and county societies to advise on public relations.

The third general area of the Department's work is assistance to the Secretary and officers in keeping the membership informed. It prepared the new handbook "Guide to Services of the A. M. A.," which has been sent to all medical society officials. It edits the "Secretary's Letter" and publishes the "Daily Bulletin," the convention newspaper issued at Annual and Clinical Sessions. The Department also assists in the preparation of speeches and articles on the A. M. A. A pamphlet, "It's *Your* A. M. A.," designed to inform the membership of services available to them through the Association, is in production.

I have devoted an unusual amount of space to a discussion of the public relations activities of the Association. I decided to do this because many physicians with whom I come in contact are a little unsure of what public relations entail, and because I feel it is most important for all medical societies to develop effective programs in this field.

Our profession has slipped in public veneration from the days of the almost universally adored country doctor. The only way to reestablish that relationship is for us to give the best possible service of which we are capable, both in the practice of medicine and in community leadership. Good performance is not enough, however, unless the public is aware of it. Our enemies are ever ready with charges against us. The public will be receptive to these attacks unless we effectively tell the story of our system of medical care.

While individual physicians cannot seek favorable publicity, medical societies can publicly take credit for good performance. When a medical society is an active public service organization, it can successfully raise the prestige of the total local medical profession. I therefore strongly urge every society to establish a positive public service program. Do this, and then tell your community about it. In developing such programs, we must always keep before us the key to successful public relations. This is the knowledge that in order to win and retain public respect it must be deserved!

JOHN W. CLINE, M.D., San Francisco.

# ORGANIZATION SECTION

## STATEMENT BEFORE HOUSE COMMITTEE BY DR. GEORGE F. LULL, SECRETARY AND GENERAL MANAGER OF THE A. M. A., ON FLUORIDATION OF DRINKING WATER

The Councils on Pharmacy and Chemistry and Foods and Nutrition of the American Medical Association made a careful study of all the available data on the ingestion of fluorides in drinking water under natural conditions and when fluorides are added. On the basis of this study, the Councils on Pharmacy and Chemistry and Foods and Nutrition adopted the following statement, Nov. 2, 1951:

"The Council on Pharmacy and Chemistry and the Council on Foods and Nutrition have been requested to state their opinion regarding the safety of fluoridation of water supplies, a procedure which has now been adopted by more than 140 cities.

"The Councils are unaware of any evidence that fluoridation of community water supplies up to a concentration of one part per million would lead to structural changes in the bones or to an increase in the incidence of fractures. The only difficulty so far revealed is a possible increase in mottling of the tooth enamel. The available evidence based on thousands of observations indicates that the incidence of mottling of the enamel in children who drink water containing fluoride up to a concentration of one part in a million is minimal and detectable only by careful dental examination. It occurs only in a small percentage of children and is so slight as not to present a problem from the point of view of appearance or strength of the teeth. Evidence of toxicity other than the effect on enamel has not been reported in communities where the water supply has several times this concentration. After considering the evidence available at this time, the Councils believe that the use of drinking water containing up to one part per million of fluoride is safe. However, the use of products which are naturally high in fluoride content, such as bone meal tablets, or of lozenges, dentifrices, or chewing gum, to which fluoride has been added, should be avoided where the drinking water has been fluoridated. In places where children are subjected to warm temperatures and consequently drink large amounts of water, a lower concentration of fluoride may be necessary to avoid mottling of the teeth."

The Councils purposely refrained from making any recommendation that communities support or oppose projects for the fluoridation of water supplies. It was the opinion of the Councils that this question should be answered by the dental profession.

The House of Delegates of the American Medical Association at its meeting in Los Angeles, Calif., Dec. 4 to 7, 1951, adopted the following resolution:

"WHEREAS, Carefully controlled studies have demonstrated that fluoridation of water supply has been definitely beneficial in the reduction of dental caries in the younger age groups; and

"WHEREAS, The Council on Pharmacy and Chemistry has reported that fluoride is nontoxic in community water supplies up to one part per million; and

"WHEREAS, The addition of fluoride to community water supplies seems to have merit; therefore be it

"*Resolved,* That the House of Delegates of the American Medical Association endorse the principle of fluoridation of community water supplies."

The House of Delegates of the Association went a step further than the Councils in endorsing the principle of fluoridation. Again, however, the House of Delegates did not urge or recommend that any communities undertake to fluoridate their water supplies. In summary then, the American Medical Association, through its Councils on Pharmacy and Chemistry and Foods and Nutrition and House of Delegates, has reached the following conclusion with respect to fluoridation: Fluoridation of public water supplies in a concentration not exceeding one part per million is nontoxic, and its principle is endorsed.

## STATEMENT OF AMERICAN MEDICAL ASSOCIATION ON RESERVE ACT OF 1951 BEFORE SENATE ARMED SERVICES COMMITTEE

The Committee on Legislation of the American Medical Association considered the Reserve Act of 1951 (H. R. 5426, 82d Congress) on Dec. 4, 1951, and voted to endorse it. This action was approved by the Board of Trustees on Dec. 6, 1951. In approving this measure, it was the feeling of the Committee on Legislation that the purposes of the bill and the mechanism proposed were basically sound. Since the above action was taken, our Association has considered and testified relative to legislation designed to effectuate a universal military training program. At that time the Association did not take a position for or against the enactment of universal military training legislation; however, several proposals were advanced relating to the medical aspects of such a program. Certain of these proposals are briefly restated here.

*Continuation of Preprofessional and Professional Education for Qualified Students.*—It has always been the firm belief of the American Medical Association that it is imperative that safeguards be adopted to prevent any disruption in the education of an adequate force of professional personnel. The necessity for such safeguards became particularly apparent with the introduction of proposals to institute a universal military training program. It is essential, not only to the maintenance of an adequate and effective corps of trained reserves but to the general welfare of the civilian population, that the education of professional personnel be allowed to proceed without any impairment.

In outlining recommendations relative to the general framework of universal military training, the National Security Training Commission recommended against split periods of preliminary training and deferment of professional students from the six months' training period. In testifying on S. 2441, we expressed the belief that the holding in abeyance of the reserve obligation for National Security Training Corps "graduates" was the one remaining mechanism for insuring the uninterrupted flow of trained reserves. It was our feeling then, as it is now, that two further points should be considered: first, the seven and one-half years of reserve obligation required by universal military training legislation should be deferred until a physician has completed his internship and, in some instances, his residency training, and second, that no undue advantage should accrue to armed forces hospitals by allowing internship and residency service in such installations to count against total reserve obligation.

*Source and Selection of Medical and Allied Health Personnel.*—There is considerable concern in the medical profession as to the method to be used in determining the medical and allied health personnel required to man a universal military training program. The American Medical Association is, as previously stated, in favor of vesting the authority for making such decisions in a national civilian board or a comparable agency in order to insure the proper distribution of medical and other health reserves between civilian and military needs. Unless this is done it will be extremely difficult to insure that men will serve in a manner that will contribute the most to the strength of the nation.

In our statement on S. 2441, 82d Congress, it was also urged that preinduction, induction, and periodic reserve physical examinations should not be performed by full-time medical personnel of the armed forces. It is believed that the use of additional physicians in the armed forces for this purpose is undesirable and unnecessary. It is recommended, instead, that such examinations be conducted by civilian physicians on a fee basis or by reserve personnel for the purpose of maintaining a satisfactory reserve status. Section 226 of H. R. 5426 could be amended to cover at least the portion of this recommendation dealing with periodic reserve physical examinations.

S. 2441 as reported favorably by your committee did not include any of our recommendations. It is assumed, however, on the basis of the discussion at the time of our last appearance and later official statements in connection with S. 2441, that the committee deems it preferable to consider these matters in connection with the over-all reserve bill that is now before you.

Despite the recent action by the House of Representatives in referring universal military training legislation back to committee, the pendency of such legislation before the Senate prompts the Association to again stress the need for adopting these proposals. If favorable action is taken by the Congress on S. 2441 or similar legislation, the only way to insure the adoption of the safeguards suggested is to provide for their inclusion in H. R. 5426.

## NEW RADIO SERIES

The Board of Trustees of the American Medical Association has announced a new health education radio series to be carried over the National Broadcasting Company network on six successive Saturdays, beginning March 29. The programs will be presented as a public service by the A. M. A. in cooperation with NBC.

Charles Laughton, famous English actor, will serve as narrator for the series. Each show will originate from New York at 7:30 p. m. Eastern Standard Time. Seventy-four NBC stations from coast to coast will pick up the program at that time, while 21 stations will transcribe it for re-broadcast.

The title of the series is "Medicine, U. S. A." Broadcast dates and subjects to be covered are: March 29, alcoholism; April 5, psychiatry; April 12, longer life; April 19, contagious diseases; April 26, exercise and athletics; and May 3, medicine's progress. "Medicine, U. S. A." will be produced under the supervision of the Bureau of Health Education.

## NEW A. M. A. RECORDINGS

A new series of 13 recordings for use by medical societies over local radio stations has just been released by the Bureau of Health Education at A. M. A. headquarters. Titled "Interlude," the series presents organ selections of music by 13 different composers of 75 to 100 years ago, together with brief discussions of health problems incident to those days and ills of the composers themselves as contrasted with present health conditions. The transcriptions were prepared under the supervision of Dr. W. W. Bauer, Bureau Director, who gives the medical summary in each presentation. Production was by Marshall-Hester Productions, New York, with Burr Lee, Chicago, director, Jack Odell narrator, and Porter Heaps organist. Program time of each recording is 14 minutes, 30 seconds. Sets can be obtained on loan, without charge, by application to the Bureau of Health Education.

## STATE MEDICAL LEGISLATION

### Arizona

**Bill Enacted.**—H. 22, has become Ch. 16 of the Laws of 1952. It amends the medical practice act by authorizing the board to **refuse, revoke, or suspend a certificate to practice medicine** to any person who is physically or mentally unable safely to engage in the practice of medicine and surgery or when the holder of a certificate has been declared insane.

### Georgia

**Bill Enacted.**—H. 875, has become Act No. 804 of the Acts of 1952. It amends the **premarital examination law** so as to permit the necessary certificates to be signed by osteopaths.

### Kentucky

**Bill Enacted.**—S. 140, approved March 5, 1952. It provides for the creation of a **department of mental health** and sets forth the powers, duties, and functions of such department.

### Michigan

**Bill Introduced.**—H. C. R. 32, proposes the creation of a committee to **investigate all matters relative to the office of coroner** and the various methods and procedures used in such offices and to investigate the need of amendatory legislation to bring about a system of administration of such offices in line with modern practices, to make available to the public and to the legislature and other public officers pertinent data relative to crimes, public health hazards, and the causes of industrial accidents and occupational diseases.

### Mississippi

**Bills Introduced.**—H. 566, proposes to authorize certain county courts to commit **alcoholics and drug addicts** to private hospitals for treatment. H. 602 to amend the law relating to grants in aid to **hospitals furnishing charity services**, proposes that no funds shall ever be granted to any institution, corporation or association which is owned or operated or managed or controlled in whole or in part by any church or any religious society, organization, association, or group, either incorporated or unincorporated. H. 631, proposes an appropriation for the purpose of defraying the expenses of the state board of health in conducting a program of **eradication and control of syphilis** and other venereal diseases. H. 702, proposes to make it a **misdemeanor for any person engaged in any of the healing arts to use the term "doctor,"** either in full or by abbreviation, in association with his name on any letterheads, cards, signs, advertisements, newspaper publications, correspondence, or other manner unless such person is a graduate of an approved school of medicine, dentistry, optometry, or veterinary sciences. H. 708, proposes to make it a **misdemeanor for any person engaged in the healing sciences to advertise** by signs placed upon the streets or roads or by newspaper, bulletins, handbills, postcards, personal correspondence, radio, or in any other form whatsoever except that they may have a sign not larger than 6 inches in height placed in front of the hospital, clinic, or other place where the person has an office stating the person's name, special field in which he is engaged, scholastic degrees, and office hours. S. 446, proposes to authorize the state hospital commission to establish **minimum requirements to constitute a standard hospital** and to inspect hospitals to determine the number, experience, training, and ethics of the staff or personnel in order to ascertain whether the hospital meets the standard requirements. No hospital that fails to meet the standard shall be eligible to receive funds for the care and hospitalization of the indigent sick.

### Missouri

**Bill Introduced.**—H. 523, to amend the law relating to **coroners and inquests**, proposes, among other things, that upon taking charge of a dead body and before moving the same, the coroner shall carefully note the appearance, the condition, and position of the body and record every fact and circumstance tending to show the cause and manner of death. The coroner would also be authorized to employ the services of a pathologist, chemist, or other expert to aid in the examination of the body or of the substances supposed to have caused or contributed to death.

### New York

**Bill Introduced.**—S. 2905, to amend the public health law relating to the inspection of designated laboratories and institutions wherein certain tests on living animals may be performed, proposes that a special representative of the state commissioner of health shall be appointed from an eligible list of five persons to be submitted by the **New York state humane society**. Such special representative would inspect such laboratories at least once quarterly to insure compliance with rules and standards.

**Bills Enacted.**—A. 264, has become Ch. 91 of the Acts of 1952. It makes it unlawful for any person to sell or furnish, other than to a licensed physician, dentist, veterinarian, nurse, podiatrist, pharmacist or drug store, hospital, sanitarium or other medical institution or a regular dealer in medical and surgical supplies or a resident physician or intern, a **hypodermic syringe or hypodermic needle** except pursuant to a written prescription of a duly licensed physician or veterinarian. A. 863, has become Ch. 96, of the Laws of 1952. It authorizes the state commissioner of health to designate approved laboratories or institutions wherein properly conducted **scientific tests or experiments or investigations involving the use of live animals** may be performed or conducted. The law authorizes the state commissioner of health to prescribe the rules under which such approval may be granted.

### Rhode Island

**Bills Introduced.**—H. 836, proposes a resolution requesting the governor to take action by executive order or otherwise to require the **state director of health** and those chief medical assistants who are now alleged to be dividing their time between private practice of medicine and their state jobs and duties to devote their entire time to the responsibility to their official positions in said state department of health. S. 257, proposes to make it unlawful for an employer to require any employee or applicant for employment to pay the **cost of a medical examination** or the cost of furnishing any records required by the employer as a condition of employment. S. 271, proposes regulations for the licensing of **optometrists and opticians.**

### South Carolina

**Bill Enacted.**—H. 1760, has become Act No. 825 of the Acts of 1952. It creates a state **board of examiners of physical therapy** for the examining and registering of persons desiring to practice physical therapy which is defined to mean the treatment of any bodily or mental condition of any person by the use of the physical, chemical and other properties of heat, light, water, electricity, massage and active and passive exercise. The use of roentgen rays and radium for diagnostic and therapeutic purposes and the use of electricity for surgical purposes, including cauterization, are not authorized.

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Prepared by the Bureau of Legal Medicine and Legislation.

# MEDICAL NEWS

## CALIFORNIA

**Art Show in California.**—The West Coast Branch of the American Physicians Art Association had an art show of work by physicians at the California Palace of the Legion of Honor in San Francisco. On March 2 the show was exhibited at the San Francisco Emporium and then was to go to the Capitol Building in Salt Lake City, where it was augmented by work of physicians of the Rocky Mountain States. Dr. Ellsworth F. Quinlan of San Francisco is president of the local physicians art association. Drs. Albert P. Krueger, Berkeley, Everett R. Lambertson, Los Angeles, and Lawrence C. Johnson of Salinas are vice-presidents, and Dr. Francis H. Redewill of San Francisco is executive secretary.

**Kinsey to Lecture at Universities.**—Alfred C. Kinsey, Sc.D., Indianapolis, director of Indiana University Institute of Sex Research, will deliver the Jake Gimbel Sex Psychology Lectures, sponsored this year by the University of California, beginning March 31. Dr. Kinsey will deliver four lectures on the Berkeley campus, one lecture at the University of California Medical Center, and one lecture at Stanford University. Sponsorship of the lectures alternates between the University of California and Stanford. Following is the schedule of lectures at Berkeley, which will be delivered in Wheeler Auditorium at 8 p. m.:

March 31, Physiologic Bases of Sexual Response.
April 2, Psychological Factors in Sexual Response.
April 3, Hormonal Factors Affecting Sexual Behavior.
April 4, Concepts of Normality and Abnormality in Sexual Behavior.

The lecture at the University of California Medical Center will be delivered in Toland Hall on April 8 on "Hormonal Factors Affecting Sexual Behavior," and will be open to students and faculty only. The lecture at Stanford will be delivered April 9 in Memorial Auditorium at 4:15 p. m. on "Concepts of Normality and Abnormality in Sexual Behavior."

## CONNECTICUT

**State Medical Meeting in Hartford.**—The annual meeting of the Connecticut State Medical Society will be held at Bulkeley High School in Hartford April 29 to May 1 under the presidency of r. F. Brae Rafferty, Willimantic. Out-of-state speakers at the general sessions include:

Stuart S. Stevenson, Pittsburgh, Prevention and Treatment of Diarrhea in Infants.
Perrin H. Long, New York, Current Problems in Antibiotic Therapy.
Robert L. Levy, New York, Coronary Heart Disease as a Problem in General Practice.
John G. Mateer, Detroit, Modern Concepts of Hepatic Cirrhosis.
William J. Mulligan, Boston, Problems in Sterility.
Elmer Hess, Erie, Pa., The General Practitioner as a Urologist.
Alton Ochsner, New Orleans, Thromboembolism.
Richard Ford, Boston, The Physician Looks at Murder.

A symposium on indispensable therapeutics will be presented Wednesday afternoon, and another on peptic ulcer, arranged by the state society of the American Board Surgeons, will be given on Thursday afternoon with Dr. Welles A. Standish, Hartford, presiding. The annual dinner is scheduled for Wednesday at 7 p. m.

**Dr. Beeson to Succeed the Late Dr. Blake.**—Dr. Paul B. Beeson of Atlanta has been appointed Ensign Professor of Medicine and successor to the late Dr. Francis G. Blake as chairman of the department of internal medicine at Yale University, New Haven. Dr. Blake, who was on leave to serve as civilian director of Army Medical Research, was to retire next June after 30 years of service on the Yale faculty. He died Feb. 1. In his new position Dr. Beeson will also be physician-in-chief of the university service in the Grace-New Haven Community Hospital. He is associate dean and has been chairman of the department o medicine of the Emory University School of Medicine in Atlanta since 1946. His appointment to the Yale University Schoo of Medicine becomes effective this spring. The Ensign professorship was established in 1951 through the gift of the late Susan A Ensign Morse of Cambridge, Mass. The son of a physician, Dr Beeson received his M.D. and Master of Surgery degrees fro McGill University, Montreal, in 1933.

## DISTRICT OF COLUMBIA

**Conference of Medical Teaching Techniques.**—This conferenc is being sponsored by the Medical Society of the District Columbia at its auditorium April 4-5. Invited speakers includ

William Parson, Charlottesville, Va., The Need for Teaching the Teac ers.
Morris Fishbein, Chicago, What to Write About and Where to Send
Mr. J. H. Henning, Morgantown, West Va., How to Prepare a Talk.
Thomas S. Jones, B.F.A., Chicago, Lantern Slides for Lectures.
Mr. Warren Sturgis, New York, Medical Motion Pictures.

Two panels on informal meetings will be held on Saturda Dr. Wallace M. Yater will serve as moderator of the first, th participants being Drs. Thomas M. Peery, Paul C. Kiernan, an W. Proctor Harvey, all of Georgetown University School Medicine; Jacob E. Finesinger, Baltimore, and Dr. Fishbein. D Brian Blades, professor of surgery at George Washington Un versity School of Medicine, will moderate a panel made up Drs. Walter C. Alvarez, Chicago, Julian P. Price, Florence, S. C Hugh H. Hussey, and Mr. Henning. The registration fee of $1 should be sent to Dr. Hugh H. Hussey, Chairman, Committee o Arrangements, Conference on Medical Teaching Technique 1718 M St., N. W., Washington, D. C.

## FLORIDA

**State Medical Meeting at Hollywood.**—The Florida Medic Association will hold its annual meeting at the Hollywood Beac Hotel in Hollywood April 28-30 under the presidency of D David R. Murphey Jr., Tampa, Fla. Out-of-state speakers a as follows:

Jerome A. Hilger, St. Paul, Coronary Disease of the Inner Ear: T Vascular Origin of Vertigo and Deafness.
William Jason Mixter, Boston, guest speaker, Pitfalls in Surgery of t Intervertebral Disk.
Steven O. Schwartz, Chicago, moderator, Symposium on Hypersplenis

The association dinner will be held at 7 p. m. Tuesday a alumni and fraternity suppers on Monday. Seventeen special groups will meet during the weekend preceding the associatio meeting. The woman's auxiliary to the association will me April 27-29.

## ILLINOIS

**Postgraduate Conference.**—The Illinois State Medical Societ Postgraduate Conference will be held at the Elks Club Springfield April 3. The program, beginning with a luncheon 12 noon, will be presented by members of the faculty of t Stritch School of Medicine of Loyola University, Chicago. T program includes a symposium on jaundice and a panel shock. There will be a fellowship gathering and dinner at 6 p. and 50 year club certificates will be awarded.

**Public Health Conference.**—The Illinois Public Health Ass ciation will hold its annual conference at the Leland Hotel Springfield April 3-4. Out-of-state speakers are as follows:

Col. Frank A. Todd, D.V.M., Washington, D. C., The Veterinarian Public Health.
William B. Kountz, St. Louis, Nutritional Aspects of Geriatrics.
Virginia Crenshaw, M.P.H., Nashville, Tenn., Interpersonal Relationsh in Health Activities.
Mr. Jack K. Smith, Independence, Mo., The Sanitation Program in County Health Department.
Herbert M. Bosch, M.P.H., Minneapolis, Sanitation Problems in Fore Countries.

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

Oscar W. Richards, Ph.D., Stamford, Conn., Microscopy as a Public Health Tool.
William Ferguson, Ph.D., Lansing, Mich., Special Types of Escherichia Coli in Infant Diarrhea.
Downey L. Harris, St. Louis, Laboratory Diagnosis of Rabies.

At the banquet Thursday at 6:30 p. m., Mr. William E. Skadden, past executive secretary of the Illinois Public Welfare Association, Springfield, will speak on "Public Relations in Public Health."

### Chicago

**County Hospital Enlarges Basic Science Staff.**—The Board of Cook County Commissioners has appropriated funds for additional full-time positions in pathology, biochemistry, and anatomy at Cook County Hospital. These newly created positions will permit a more extensive teaching program for the house staff of the hospital in basic science.

**Lecture on Medical History.**—The D. J. Davis Lecture on Medical History at the University of Illinois College of Medicine will be given April 9 by Dr. Erwin H. Ackerknecht, professor of the history of medicine, University of Wisconsin, Madison, on "Diseases in the Middle West." The lectureship was established in 1942 by the associates and friends of Dr. David J. Davis on his retirement as dean of the college of medicine.

**Grant to Physical Therapy School.**—The United Cerebral Palsy Association has made a grant of $12,000 to the Physical Therapy School of Northwestern University to enable the school to continue its training of therapists for another year. Robert I. Rogin of New York, who presided at the luncheon, pointed out that the school was going to be closed for lack of funds when the matter was brought to the attention of the United Cerebral Palsy Association. Another organization that had been supporting the school was unable to continue doing so, he explained.

## MASSACHUSETTS

**Expand Health Education Program.**—The section of health information, Massachusetts Department of Public Health, has been elevated to a division with Dr. Louis Cohen as director. This state-wide program includes such activities as community organization; preparation of health information materials; and distribution of materials, films, and other sources of education for better health. In addition to experience as a general practitioner, Dr. Cohen served as a school and industrial physician before joining the state health department in 1950.

## MINNESOTA

**Research Professorship in Medicine.**—The University of Minnesota, Minneapolis, is about to receive almost $400,000 plus an interest in West Virginia coal lands from the estate of the late George S. Clark, Georgetown, S. C., lumberman, who retired to Minneapolis in 1942. Under the terms of the will, the bequest is to be used "for the purpose of founding and endowing a research professorship in medicine," primarily in the field of high blood pressure. If at any time the problem of hypertension should be considered solved, the fund may be directed toward the solution of "any similar worthy problem in research medicine whose solution would contribute greatly to humanity at large." The will provides that direct supervision of the fund be in the hands of the dean and the head of the department of medicine. The George S. Clark professorship will provide a full time physician and an investigator of proved ability and accomplishment to serve in the research laboratories of the Variety Club Heart Hospital.

## NEW HAMPSHIRE

**State Tumor Registry.**—A state-wide tumor registry has been established in New Hampshire under the sponsorship of the New Hampshire Society of Clinical Pathologists. The program is being financed by the state chapter of the American Cancer Society. The registry will be a central point for the collection of material on cancer and increase the experience of pathologists in the state with cancer by making available all interesting problems to all pathologists. It will also make available in an organized form cancer material for any physician in the state.

## NEW JERSEY

**Norton Memorial Fund.**—The Dr. James F. Norton Memorial Fund was recently established to provide medical education for needy medical students. It was organized by friends of the late Dr. Norton. Dr. Norton was very active in the state medical society and was a former vice-president of the American Medical Association.

**Present Status of BCG Vaccination.**—A panel discussion on BCG vaccination will be held at the Academy of Medicine in Newark April 2 at 8:30 p. m. It is open to all physicians, and there is no registration fee. The speakers will be Drs. H. McLeod Riggins of New York, Joseph D. Aronson of Philadelphia, Herman Hilleboe of Albany, N. Y., Johannes Holm of Copenhagen, Denmark, Donald J. Ottenberg, and Arthur B. Robins of New York.

## NEW MEXICO

**Dr. Boothby Decorated by Sweden.**—Dr. Walter M. Boothby, head of the respiratory laboratory at the Lovelace Foundation for Medical Education and Research in Albuquerque and a professor emeritus of the Mayo Foundation, has been awarded the Order of Commander of the North Star by the Crown of Sweden. The presentation was made by the Swedish Consul in Houston, Texas, at a recent ceremony in Albuquerque. Dr. Boothby has long been noted for his studies in the field of aviation physiology. The award was made in recognition of his work in helping to establish an aeromedical laboratory in Sweden several years ago.

## NEW YORK

**Broad Lectureship in Gynecology.**—Dr. Roger C. Graves, clinical professor of urology at Tufts College Medical School, Boston, gave the annual George Birney Broad Lectureship in gynecology at the State University of New York College of Medicine at Syracuse March 18 on "The Bladder and the Ureter in Gynecology." In addition, he conducted a seminar at Syracuse Memorial Hospital on disorders of the female urinary tract.

**Personals.**—Dr. Rudolf Nissen, who has been appointed head of the department of surgery at the University of Basel, Switzerland, and surgeon-in-chief of Burgerspital of that city, was the guest at a dinner sponsored by the Board of Trustees and the Medical Board of The Jewish Hospital of Brooklyn March 5 at the Hotel Granada, Brooklyn. Since 1940 he has been attending surgeon at the Jewish Hospital of Brooklyn. He will assume his new position on April 1.——At the invitation of the Israeli government Dr. John H. Garlock, chief of the Surgical A Service at Mount Sinai Hospital and clinical professor of surgery at Columbia University, left March 19 for a six week visit to the major hospitals of Israel. He will conduct clinics and lecture in each institution. Dr. Garlock will be accompanied by an anesthetist, Dr. Sydney S. Lyons, who will give courses in modern anesthetic methods.

### New York City

**Conference on Chronic Pulmonary Diseases.**—The Tuberculosis Sanatorium Conference of Metropolitan New York will offer a clinical session on chronic pulmonary diseases as the program for its annual residents' night April 9 at 8:15 p. m. in the Cornell University Medical College Amphitheatre.

**Class for Cerebral Palsied Children.**—Through a grant of $22,000 made by the United Cerebral Palsy of New York City, Inc., a special class for cerebral palsied children is to be opened in Public School 85 in the Bronx under the joint operation of the board of education and the department of health. There are two other schools in New York, one in Queens and one in Manhattan, which are also financed by private funds.

**Harlem Hospital Tumor Conference.**—Dr. Arthur Purdy Stout, professor of pathology at Columbia University, will lecture on "Tumors of the Pleura" at 10:45 a. m. April 16 in the Harlem Hospital's Women's Pavilion. A discussion will follow the lecture. At the conference on May 21 Dr. Isidore Snapper, director of graduate medical education at Mount Sinai Hospital, will speak on "Multiple Myeloma."

## OHIO

**University Appointment.**—Dr. Hamilton S. Davis, formerly resident in anesthesiology at Grasslands Hospital, Valhalla, N. Y., has been appointed assistant professor of anesthesiology at Western Reserve University School of Medicine, Cleveland.

**Fraternity Lecture.**—The Alpha Omega Alpha Lecture will be given by Dr. Lawson Wilkins, Baltimore, on "The Diagnosis and Treatment of Congenital Adrenal Hyperplasia," April 17 at 8:30 p. m. in the Institute of Pathology Amphitheater, Cleveland.

**Health Center Television Program.**—A half hour television program, designed to show the citizens of central Ohio the health services, care of patients, the teaching and research facilities of the new $15 million Health Center at Ohio State University, Columbus, was launched in mid-February. Entitled "Picture of Health," it is presented over station WBNS-TV on Tuesdays at 8:30 p. m. This pioneering effort of the Health Center and the station is to show its constituents how it serves them. The opening program on Feb. 12 showed the work of the emergency room service. The four following programs dealt with the x-ray service, anesthesia, service to patients, nursing service, and education. Programs on obstetrics, social service, physical medicine, cancer, outpatient service, and industrial medicine are also planned.

## TENNESSEE

**Personal.**—Dr. Nils Lofgren, visiting instructor in chemistry at the University of Tennessee Medical Units, now on a leave of absence from the University of Stockholm, has been awarded the Norblad Ekstran Medal of the Swedish Chemical Society for his investigations of local anesthetics, especially lidocaine (xylocaine®). Dr. Lofgren is an associate professor of chemistry at the University of Stockholm.

**Fellowships in Biochemistry.**—Teaching fellowships are available in the Division of Chemistry, University of Tennessee School of Biological Sciences in Memphis. The fellowships are offered to qualified graduate students who will be candidates for the master's degree or the doctorate in biochemistry. Appointments are for 10 months beginning Sept. 1. Information may be obtained from Thomas P. Nash, Ph.D., the University of Tennessee, 874 Union Ave., Memphis 3.

## EST VIRGINIA

**edical Alumni to Organize.**—A West Virginia University School of Medicine Alumni Association will be formally organized at White Sulphur Springs during the annual meeting of the West Virginia State Medical Association in July. The meeting on July 25 will be called to order by Dr. Edward J. Van Liere of Morgantown, for many years dean of the school of medicine. An invitation to attend this meeting will be sent to all living graduates of the school of medicine, beginning with the class of 1902-1903.

## GENERAL

**Urology Board Examination.**—The American Board of Urology gives the following interpretation of new requirements for candidates for examination: Any candidate who starts training before June 30, 1955, under the old requirements, may complete the program of the old requirements and thereby become acceptable for examination. No more candidates will be accepted for examination whose training has been entirely on a preceptorship basis started after March 1, 1951.

**Foundation Prize.**—The American Association of Obstetricians, Gynecologists, and Abdominal Surgeons will award its foundation prize of $200 at the annual meeting of the association, at which time the successful contestant must appear in person to present his contribution as a part of the regular scientific program. Before June 1 three copies of all manuscripts, typewritten and limited to 5,000 words, must be in the hands of the secretary, Dr. William F. Mengert, 2211 Oak Lawn Avenue, Dallas, Texas.

**New Award in Tuberculosis Control.**—The National Tuberculosis Association last month established the Will Ross Medal, which will be awarded annually for "outstanding distinguished contribution to the tuberculosis control movement in some field other than that of medical science." The medal is in memory of Mr. Ross, a former president of the association and a member of its Board of Directors from 1938 until his death last May. The first award will be made at the annual meeting of the association in Boston the week of May 26.

**Federation Societies Meeting in New York.**—The annual meeting of the Federation of American Societies for Experimental Biology will be held in New York April 14-18. The scientific sessions of the six constituent societies will begin at 9 a. m. April 15. The sessions will be held in the Statler, New Yorker, McAlpin, Martinque, and Governor Clinton hotels and in the Manhattan Center, adjacent to the Hotel New Yorker. Sunday and Monday, April 13 and 14, will be devoted to meetings of the society councils, the federation executive committee, and other committees. The joint session of the federation will be held Tuesday evening in the Promenade Ballroom at the Manhattan Center.

**International Congress of Radiology.**—Arrangements are well underway for the International Congress of Radiology to be held in Copenhagen, Denmark, July 19-25, 1953. Potential members are asked to enroll well in advance of the official closing date. The address of the congress is Seventh International Congress of Radiology, Øster Volgade 10, Copenhagen K, Denmark. Flemming Nørgaard is the secretary-general. An international exhibition of x-ray equipment is being arranged in conjunction with the congress. Any firms not having received information about the exhibition and requiring further details should apply to the Technical Exhibition Committee, Seventh International Congress of Radiology, Dr. E. de Fine Licht, Chairman, at the above address.

**Awards in Gerontology.**—Two awards of $250 each have been presented by the Bobst Pharmacal Company, Inc., to two of the most outstanding contributors to the Second International Gerontological Congress, held in St. Louis, Sept. 9-14, 1951. One of the awards has been given to Albert I. Lansing, Ph.D., department of anatomy, Washington University School of Medicine, St. Louis, for his presentation entitled "A Cytoplasmic Factor in Aging." The other recipient was Dr. J. A. Huet, Hôpital de Nanterre, Paris. The title of Dr. Huet's paper was "Organization et Rentabilité d'un 'Sénat' dans une Usine Française de Fabrication d'Automobiles." The Bobst Pharmacal Company has set up three cash prizes to be given annually to encourage more international research on problems of aging.

**Conference of WHO Experts on Trachoma.**—Control of trachoma, particularly among children, was discussed March 3, when the World Health Organization's Expert Committee on Trachoma began its first session in Geneva. The disease occurs in almost every country in the world. The experts came from Italy, Egypt, Japan, Portugal, Tunisia, Morocco, and the United States. They were to outline a general work program, including international coordination and scientific research. Other recommendations will deal with modern methods of treatment, measures for trachoma control in underdeveloped countries, and prevention of the spread of this infectious disease through international traffic.

**Grants To Relieve Shortage of Teachers.**—Twenty-one young scientists, all medical school faculty members, have been named as the fifth group of Scholars in Medical Science by the John and Mary R. Markle Foundation. This is the largest number appointed for any year since the program began in 1948. The purpose of the program is to help relieve the shortage of teachers and investigators by providing academic security and financial assistance for young faculty members early in their careers. All grants are made directly to the medical schools at the rate of $6,000 annually for five years and are earmarked for support of a specific scholar and his research. The medical schools nominated 54 candidates, 39 of whom had three day interviews with the committees. The medical schools vouched for the scientific competence of the candidates. Other essential factors were character, personality, and potential leadership.

**Outbreaks of Psittacosis.**—According to the U. S. Public Health Service, Dr. James C. Hart, Connecticut Department of Health, has reported a second case of psittacosis. The patient had received two lovebirds for Christmas and became ill early in February with symptoms of respiratory disease. The Massachusetts State Health Department is investigating the source of the birds. Dr. Hart also reports that information has been received that 4 more of the 10 parakeets sent to the Communicable Disease Center Laboratory were found to be infected, in addition to the 3 previously reported. This group of parakeets was purchased in Florida and was the source of infection for the first human case reported this year in Connecticut. Dr. Robert F. Hansen, Kentucky Department of Health, reports that information was received on Feb. 27 that a blood specimen was positive for psittacosis in a titer of 1:16. Investigation showed that a parakeet had been purchased from a neighboring state on Jan. 3. The bird died on Jan. 25. Two adult members of the family became ill on Jan. 26 and were given penicillin. Dr. Leroy E. Burney, Indianapolis, reports that two cases of psittacosis have been diagnosed in Whiting, Ind. Both are said to have resulted from contact with parakeets purchased locally.

**Railway Surgeons Meeting in Chicago.**—The American Association of Railway Surgeons will hold its annual meeting with the Association of Surgeons of the Pennsylvania Railroad at the Drake Hotel, Chicago, April 1-3 under the presidency of Dr. D. Ray Murdock, Greensburg, Pa., president of both associations. The following physicians not associated with railroads will present papers:

Van Mashburn Ellis, Philadelphia, Intraocular Foreign Bodies and Their Complications.
Ralph E. Dolkart, Chicago, Status of Therapy with ACTH and Cortisone.
William Bates, Philadelphia, The Acute Abdomen.
Harvey S. Allen, Chicago, Management of Wounds with Extensive Soft Tissue Loss.
Stuart W. Harrington, Rochester, Minn., Surgical Treatment of Traumatic Diaphragmatic Hernia.
Warren Cole, Chicago, Problems in Biliary Tract Surgery.
Raymond Householder, Chicago, An Ounce of Prevention in a Few Common Fractures.
Walter C. Alvarez, Chicago, Why Some People Are So Upset by Small Injuries.

Wednesday afternoon will be devoted to a symposium on vascular disorders. The speakers will be Dr. Martin H. Wendkos, Philadelphia, and Drs. Eric Oldberg, Oscar Sugar, Leo M. Zimmerman, and Walter W. Carroll, all of Chicago. The speaker at the banquet Wednesday at 7:30 p. m. will be Representative Walter H. Judd, Congressman from the Fifth District of Minnesota, who will speak on "Which Way America?" Three films will be shown on Thursday.

**Proposed Expansion of Medical Colleges.**—A recent survey conducted by the *New York Times* showed the greatest expansion program in the history of medical education, to cost 250 million dollars, is now underway in the United States. The *Times* surveyed 80 medical colleges and 48 state commissioners of education through questionnaires. According to the survey, medical colleges will spend within the next few years 50 million dollars for laboratories, 30 million dollars for classrooms, and 20 million dollars for dormitories. Another 100 million dollars is earmarked for research and special projects. In addition, the immediate cost for establishing new medical institutions will be more than 50 million dollars, making an over-all expansion program of a quarter of a billion dollars. The *Times* reported that to meet the increasing demands for more physicians and medically trained men, at least 10 states have taken steps to build new medical schools or expand their two year basic science schools into four year institutions. "In the current academic year, 1951-1952," the *Times* said, "the medical colleges admitted the largest freshman classes in recent history, a total of 7,381 . . . Despite the expansions now taking place, large numbers of qualified applicants are unable to gain admittance to any medical college in this country. Many of them seek places in foreign institutions. The records indicate that 20,000 individuals applied for admission to American medical schools for the current college year. As many of them applied to more than one institution, the total number of applications was more than 70,000, or an average of 3.5 a student."

**American Academy of Neurology Meeting.**—This society will hold its annual meeting at the Brown Hotel in Louisville April 24-25 under the presidency of Dr. Pearce Bailey, Washington, D. C. The meeting will be preceded by special courses in neuropathology, neurologic roentgenology, and electroencephalography. Papers by single authors will be presented as follows:

Ian A. Brown, Minneapolis, Gastrointestinal Disturbances Due to Involvement of the Hypothalamus in Bulbar Poliomyelitis.
Haddow M. Keith, Rochester, Minn., Sequelae of Brain Damage at Birth.
Herman Josephy, Chicago, Pathologic Anatomy of the Brain in Hemiplegic Cerebral Palsy.
William S. Chalgren, Mankato, Minn., Neurological Complications of the Hemorrhagic Diseases.
John A. Wagner, Baltimore, The Problem of Cerebral Phlebothrombosis.
Irving S. Cooper, New York, Abnormalities of Water and Electrolyte Metabolism.
Clark H. Millikan, Rochester, Minn., The Natural History of Cerebral Infarcts.
Carl F. List, Grand Rapids, Mich., Arteriovenous Malformations of the Brain.

A pediatric neurology symposium on inability to walk at the age of three years will be held Thursday afternoon, with Dr. Roland P. MacKay, Chicago, serving as moderator. The participants will be Drs. Douglas N. Buchanan, Chicago, Orville T. Bailey, Indianapolis, Franc D. Ingraham, Boston, and Abe B. Baker, Minneapolis. The four closing papers of the session are being presented under the joint sponsorship of the academy and the American League Against Epilepsy, whose meeting will continue through April 26. The banquet will be held Thursday at 8 p. m. The luncheon speaker on Friday will be Dr. Howard A. Rusk, New York, speaking on "What Are We Going to Do About the Chronic Patient." The woman's auxiliary will meet in conjunction with the academy.

**College of Physicians to Meet in Cleveland.**—The American College of Physicians will hold its annual session in Cleveland April 21-25 with headquarters at the public auditorium under the presidency of Dr. Maurice C. Pincoffs, Baltimore. Invited speakers at the general sessions include:

James H. S. Gear, Johannesburg, Union of South Africa, The James D. Bruce Memorial Lecture on Preventive Medicine: Immunity to Poliomyelitis.
Amos Christie, Nashville, Tenn., Histoplasmosis.
Isaac Starr, Philadelphia, Present Status of Ballistocardiography.
Richard J. Bing, Birmingham, Physiology of Congenital Heart Disease.
Helen B. Taussig, Baltimore, Prognosis Following the Blalock-Taussig Operation: An Analysis of 1,000 Cases.
Charles P. Bailey, Philadelphia, Surgical Repair of Interatrial Septal Defects.
Charles T. Dotter, New York, Angiocardiography in Mediastinal and Pulmonary Disease.
Isidore Snapper, New York, Osteoporosis and Osteomalacia.
William J. Eisenmenger, New York, Role of Sodium Studies in the Therapy of Cirrhosis.
Andre Cournand, New York, The John Phillips Memorial Lecture: A Discussion of the Concept of Cardiac Failure in the Light of Recent Physiologic Studies in Man.
John M. Howard, Captain (MC) AUS, Washington, D. C., Physiology of the External Pancreatic Secretion in Man.
J. Garrott Allen, Chicago, Abnormal Bleeding Associated with Blood Transfusion.
William J. Harrington, St. Louis, Immunologic Mechanisms in Idiopathic Thrombocytopenic Purpura.
Henry M. Lemon, Boston, Application of Cytological Diagnosis in Cancer of the Stomach, Pancreas and Biliary System.
Muriel C. Meyers, Ann Arbor, Mich., Use of Cortisone and ACTH in Idiopathic Thrombocytopenic Purpura and in Acquired Hemolytic Anemia.
Robert H. Ebert, Chicago, Changes in Connective Tissue Reaction Induced by Cortisone.
George Crile Jr., Cleveland, Thyroiditis.
Michael Scott, Philadelphia, Neurosurgical Treatment of Spontaneous Intracerebral Hemorrhage Simulating the Common Stroke.
Donald A. Covalt, New York, Rehabilitation of the Hemiplegic.
John A. Hightower, Capt., (MC), USA, Baltimore, Protean Clinical Features of Leptospirosis and Its Diagnosis.

On Wednesday evening Dr. Raymond B. Allen, Washington, D. C., will speak on "The Administrative Process and Health Problems," and at the banquet Thursday Rabbi Abba Hillel Silver, Cleveland, will speak on "American Leadership in the World Today." Four symposiums will be presented on Wednesday and Friday mornings, and clinical-pathological conferences are scheduled Tuesday through Friday. Clinics will be televised in color from the Cleveland Clinic Hospital to the public auditorium Tuesday through Friday mornings from 9 a. m. to 10:50 a. m.

## LATIN AMERICA

**Radiological Association of Argentina.**—The fourth Congress of the Radiological Association of Argentina will be held from July 23-26 in Santa Fe, Argentina. The following main topics will be discussed: (1) "Cancer of the Breast, Radiologic Diagnosis, Surgical Treatment, Radiologic Treatment and Pathology"; (2) "Malignant Tumors of the Bones, Surgical Treatment, Radiologic Treatment, Radiologic Diagnosis and Pathology"; and (3) "Radiologic Diagnosis of Abdomino-pelvic Tumors." A cordial invitation is extended to American physicians. Chairman of the congress is Dr. Raúl Mayer, San Jerónimo 3472, Santa Fe, Argentina.

## FOREIGN

**Finland Signs Agreement with WHO.**—Finland and the World Health Organization have signed an agreement, under the United Nations expanded program of technical assistance, covering 10 important health programs to be undertaken in that country this year and next. WHO will assist Finland in campaigns against communicable diseases, and in public health programs, health and vital statistics, and health education. Fourteen WHO experts will advise the Finnish government on these activities and on improvement of sanitation, nursing care, social and occupational hygiene, child health and nutrition, and mental health. In addition, 52 fellowships will be granted to physicians, nurses, sanitary engineers, and other Finnish health personnel.

# MEETINGS

Alabama, Medical Association of the State of, Montgomery, April 17-19. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery, Secretary.

American Academy of Neurology, Brown Hotel, Louisville, Ky., Apr. 24-25. Dr. Francis M. Forster, 3800 Reservoir Rd. N.W., Washington, D. C., Secretary.

American Academy of Obstetrics and Gynecology, Cincinnati, April 1. Dr. Ralph A. Reis, 116 South Michigan Boulevard, Chicago 3, Secretary.

American Association for Thoracic Surgery, Dallas, Texas, May 8-10. Dr. Paul C. Samson, 2938 McClure St., Oakland 9, Calif., Secretary.

American Association of Immunologists, New York, April 14. Dr. John Y. Sugg, 1300 York Ave., New York, Secretary.

American Association of Pathologists and Bacteriologists, New York, April 10-12. Dr. Alan R. Moritz, 2085 Adelbert Road, Cleveland 6, Secretary.

American Association of Railway Surgeons, Drake Hotel, Chicago, April 1-3. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, ecretary.

erican Association of the History of Medicine, Kansas City, Kans., lay 1-3. Dr. Iago Galdston, 2 East 103d St., New York 29, Secretary.

merican College of Allergists, William Penn Hotel, Pittsburgh, April 7-9. Dr. Fred W. Wittich, 401 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American College Health Association, Copley Plaza Hotel, Boston, May 1-3. Miss Edith M. Lindsay, School of Public Health, University of California, Berkeley 4, Calif., Secretary.

American College of Physicians, Cleveland, April 21-25. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Executive Secretary.

American College of Surgeons, Sectional Meetings:

Tucson, Ariz., Pioneer Hotel, April 7-9. Dr. Meade Clyne, 110 South Scott St., Tucson, Chairman.

Vancouver, B. C., Vancouver Hotel, March 31-April 4. Dr. J. Russell Neilson, 925 West Georgia St., Vancouver, B. C., Chairman.

American Congress on Obstetrics and Gynecology, Netherlands-Plaza Hotel, Cincinnati, March 31-April 4. Dr. Luella E. Nadelhoffer, 116 South Michigan Ave., Chicago 3, Secretary.

American Dermatological Association, Broadmoor Hotel, Colorado Springs, Colo., Apr. 23-26. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn., Secretary.

American Electroencephalographic Society, Hotel Claridge, Atlantic City, N. J., May 10-11. Dr. John A. Abbott, Massachusetts General Hospital, Boston 14, Secretary.

American Federation for Clinical Research, Haddon Hall, Atlantic City, N. J., May 4. Dr. Stewart Wolf, 525 East 68th St., New York 21, Secretary.

American Gastro-Enterological Association, Hotel Claridge, Atlantic City, N. J., May 2-3. Dr. Dwight L. Wilbur, 655 Sutter St., San Francisco 2, Secretary.

American Gastroscopic Society, Hotel Claridge, Atlantic City, N. J., May 2-3. Dr. H. Marvin Pollard, University Hospital, Ann Arbor, Mich., Secretary.

American Goiter Association, Chase Hotel, St. Louis, May 1-3. Dr. George C. Shivers, 100 East St. Vrain St., Colorado Springs, Colo., Secretary.

American Gynecological Society, The Homestead, Hot Springs, Va., May 12-14. Dr. John I. Brewer, 104 South Michigan Ave., Chicago, Secretary.

American Heart Association, Hotel Statler, Cleveland, April 17-20. Dr. Willian H. Bunn, 1775 Broadway, New York 19, Secretary.

American Neurological Association, Hotel Claridge, Atlantic City, N. J., May 8-10. Dr. H. Houston Merritt, 710 West 168th St., New York 32, Secretary.

American Pediatric Society, Hotel Chamberlin, Old Point Comfort, Va., May 7-9. Dr. Aims C. McGuiness, 237 Medical Laboratories, Univ. of Pennsylvania, Philadelphia 4, Secretary.

American Psychiatric Association, Atlantic City, N. J., May 12-16. Dr. R. Finley Gayle Jr., 6300 Three Chopt Rd., Richmond 21, Va., Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 5. Dr. William M. M. Kirby, Univ. of Washington School of Medicine, Seattle 5, Secretary.

American Society for Experimental Pathology, New York, April 14-18. Dr. Russell L. Holman, 1542 Tulane Ave., New Orleans 12, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Hotel Statler, New York, April 14-18. Dr. Carl C. Pfeiffer, 1835 W. Polk St., Chicago 12, Secretary.

American Society of Biological Chemists, New York, April 14-18. Dr. Elmer H. Stotz, 260 Crittenden Blvd., Rochester, N. Y., Secretary.

American Surgical Association, White Sulphur Springs, W. Va., Apr. 16-18. Dr. Nathan A. Womack, University Hospitals, Iowa City, Secretary.

American Venereal Disease Association, Washington, D. C., May 1-2. Dr. William L. Fleming, 750 Harrison Ave., Boston 18, Secretary.

Arizona Medical Association, Phoenix, April 30-May 3. Dr. Frank J. Milloy, 15 E. Monroe St., Phoenix, Secretary.

Arkansas Medical Society, Little Rock, April 21-23. Dr. William R. Brooksher, 215 Kelley Bldg., Fort Smith, Secretary.

Association of American Physicians, Atlantic City, N. J., May 6-7. Dr. Henry Thomas Jr., 1201 North Calvert St., Baltimore 2, Secretary.

California Medical Association, Biltmore Hotel, Los Angeles, April 27-30. Dr. Albert C. Daniels, 450 Sutter St., San Francisco 8, Secretary.

Connecticut State Medical Society, Hartford, April 29-May 1. Dr. Creighton Barker, 160 St. Ronan Street, New Haven, Secretary.

Federation of American Societies for Experimental Biology, New York, April 14-18. Dr. M. O. Lee, 2101 Constitution Avenue, Washington 25, D. C., Secretary.

Florida Medical Association, Hollywood, April 27-30. Dr. Samuel M. Day, P. O. Box 1018, Jacksonville, Secretary.

Georgia, Medical Association of, Atlanta-Biltmore Hotel, Atlanta, May 12-14. Dr. David H. Poer, 875 West Peachtree St. N.E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Honolulu, May 1-4. Dr. I. L. Tilden, 510 S. Beretania St., Honolulu 13, Secretary.

Industrial Medical Association, Cincinnati, April 21-24. Dr. Edward C. Holmblad, 28 E. Jackson Blvd., Chicago 4, Managing Director.

Iowa State Medical Society, Des Moines, April 28-30. Dr. Allan B. Phillips, 406 Sixth Avenue, Des Moines 9, Secretary.

John A. Andrew Clinical Society, Memorial Hospital, Tuskegee Institute, Ala., April 6-12. Dr. Eugene H. Dibble Jr., Memorial Hospital, Tuskegee Institute, Secretary.

Kansas Medical Society, Town House, Kansas City, April 27-May 1. Dr. Dale D. Vermillion, 512 New England Bldg., Topeka, Secretary.

Louisiana State Medical Society, Shreveport, April 28-30. Dr. C. Grenes Cole, 1430 Tulane Ave., New Orleans 12, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 28-30. Dr. George H. Yeager, 1211 Cathedral St., Baltimore 1, Secretary.

Mid-Continent Psychiatric Association, President Hotel, Kansas City, Mo., April 26-27. Dr. Paul Hines, 2625 W. Paseo, Kansas City, Mo., Secretary.

Mississippi State Medical Association, Jackson, May 13-15. Mr. Roland B. Kennedy, 508 First Federal Bldg., Jackson, Executive Secretary.

Missouri State Medical Association, Hotel Jefferson, St. Louis, March 30-April 2. Dr. H. E. Petersen, 634 North Grand Blvd., St. Louis 3, Secretary.

Nebraska State Medical Association, Cornhusker Hotel, Lincoln, May 12-15. Dr. R. B. Adams, 1315 Sharp Bldg., Lincoln 8, Secretary.

New Mexico Medical Society, Carlsbad, May 8-10. Dr. L. G. Rice Jr., 221 West Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Hotel Statler, New York, May 12-16. Dr. Walter P. Anderton, 292 Madison Ave., New York 17, Secretary.

North Carolina, Medical Society of the State of, Hotel Carolina, Pinehurst, May 5-7. Dr. Millard D. Hill, 203 Capitol Club Bldg., Raleigh, Secretary.

Northern Tri-State Medical Association, University of Notre Dame, South Bend, Ind., April 15. Dr. William H. Gordon, 1553 Woodward Ave., Detroit, Secretary.

Post Graduate Institute of the Philadelphia County Medical Society, Bellevue-Stratford Hotel, Philadelphia, April 1-4. Dr. Thomas M. Durant, 301 South 21st St., Philadelphia 3, Director.

Rhode Island Medical Society, Providence, May 6-8. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.

Society for Pediatric Research, Old Point Comfort, Va., May 5-6. Dr. Sydney S. Gellis, 300 Longwood Ave., Boston 15, Secretary.

Society of American Bacteriologists, Hotel Statler, Boston, April 27-May 1. Dr. Henry W. Scherp, 260 Crittenden Blvd., Rochester 20, N. Y., Secretary.

Society of Biological Psychiatry, Atlantic City, N. J., May 11. Dr. George N. Thompson, 1136 West Sixth St., Los Angeles 17, Secretary.

South Carolina Medical Association, Ocean Forest Hotel, Myrtle Beach, May 14-16. Dr. N. B. Heyward, 120 West Cheves St., Florence, Secretary.

Southeastern Section, American Urological Association, Boca Raton, Fla., April 2-5. Dr. Russell B. Carson, Sweet Bldg., Fort Lauderdale, Fla., Secretary.

Southern Oregon Medical Society, Roseburg, May 13. Dr. F. C. Adams, 1435 Esplanade St., Klamath Falls, Secretary.

Tennessee *State Medical Association, Andrew Johnson Hotel*, Knoxville, April 7-9. Mr. V. O. Foster, 504 Doctors Bldg., Nashville 3, Executive Secretary.

Texas Medical Association, Dallas, May 4-7. Dr. Sam N. Key Sr., 700 Guadalupe St., Austin 3, Secretary.

Western Association of Industrial Physicians and Surgeons, Biltmore Hotel, Los Angeles, April 26. Dr. David D. Holaday, American Can *Company, Third and 20th Sts., San Francisco 7, Secretary.*

## INTERNATIONAL

Australasian Medical Congress, Melbourne Victoria, Australia, Aug. 22-30. Dr. C. H. Dickson, Medical Society Hall, 426 Albert St., East Melbourne, Victoria, Australia, Hon. General Secretary.

Commonwealth and Empire Health and Tuberculosis Conference, Central Hall, London, England, July 8-13. Dr. J. H. Harley Williams, Tavistock House North, Tavistock Sq., London, W.C.1, England, Secretary General.

Congress of the International Diabetes Federation, Leyden, Netherlands, July 7-12. Dr. F. Gerritzen, 33. Prinsegracht, The Hague, Netherlands, Secretary.

European Congress of Cardiology. University of London, Bloomsbury, W.C.1, England, Sept. 10-12. Dr. K. Shirley Smith, 35 Wimpole St., London, W.1, England, Secretary.

European Society of Cardiovascular Surgery, Strasbourg, France, Oct. 3-4. *Sir James* Learmonth, Department of *Surgery*, University New *Buildings, Edinburgh 8, Scotland.*

Interamerican Cardiological Congress, Buenos Aires, Argentina, Aug. 31-Sept. 7. Dr. Blas Moia, Larrea 1132, Buenos Aires, Argentina, Secretary-General.

Inter-American Congress of Public Health, Havana, Cuba, Sept. 27-Oct. 1. Pan-American Sanitary Bureau, 2001 Connecticut Ave., Washington, D. C

Inter-American Congress of Radiology, Mexico City, Mexico, Nov. 2-6 Dr. Guido Torres Martinez, Marsella No. 11, Mexico, D.F., Secretary-General.

International College of Surgeons, Madrid, Spain, May 20-24. Dr. Max Thorek, 850 West Irving Park Road, Chicago, Ill., U. S. A., Secretary-General.

International Congress of Biochemistry, Paris, France, July 21-27. Prof. Jean Courtois, 4, Avenue de l'Observatoire, Paris 6$^e$, France, Secretary.

International Congress of Comparative Pathology, Madrid, *Spain*, May 4-11. Prof. Carda-Aparici, Calle Fernando VI.8, Madrid, *Spain*, Secretary.

International Congress of Dermatology and Syphilology, London, England, July 21-26. Dr. Gordon B. Mitchell-Heggs, 5, Lisle St., London, W.C.2, England, General Secretary.

International Congress on Diabetes, Leyden, The Netherlands, July 7-12. Dr. F. Gerritzen, 33, Prinsegracht, The Hague, Netherlands.

International Congress of Dietetics, Royal Tropical Institute, Amsterdam, The Netherlands, July 7-11. Miss Diane J. Ten Haaf, Educational Bureau of the Nutritional Council, 42 Koninginnegracht, The Hague, Netherlands, General Secretary.

International Congress on Diseases of the Chest, Rio de Janeiro, Brazil, Aug. 24-30. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, *Executive Secretary.*

International Congress of Haematology, Mar del Plata, Argentina, Sept. 21-26. Dr. Carlos Reussi, Anchorena 1710, Buenos Aires, Argentina, *Secretary.*

International Congress of Health Technicians, Palais de la Mutualite, Paris, France, June 9-14. Secretariat General, 6 Square Desaix, Paris XV$^e$, *France.*

International Congress of the History of Medicine, Nice-Cannes, *France, and Monaco, Sept. 8-18. Dr. F. A.* Sondervorst, 124 Avenue des Allies, Louvain, Belgium, Secretary-General.

International Congress of Internal Medicine, Friends House, London, *N.W.1, Eng. Sept. 15-18. Sir Harold Boldero, 12 Pall Mall* East, London, S.W.1, England, Secretary.

International Congress on Medical Records, London, England, *Sept.* 7-12. Miss Gwen Perkins, 120 C Street S.E., Washington, D. C., Chairman.

International Congress of Medicine and Sport, Paris, France. May 29-June 1. Prof. Chailley-Bert, 1 rue Lacretelle, Paris 15$^e$, France, Chairman.

International Congress on Neuropathology, Rome, Italy, Sept. 8-13. Dr. Armando Ferraro, 722 W. 168th St., New York, N. Y., U. S. A., Secretary General.

International Congress of Oto-neuro-ophthalmology, Lisbon and Estoril, Portugal, April 22-26. Prof. Diogo Furtado, Servico de Neurologia, Hospital dos Capuchos, Lisbon, Portugal, General Secretary.

International Congress of Physical Medicine, London, England, July 14-19. Dr. A. C. Boyle, 45, Lincoln's Inn Fields, London, W.C.2, England, Hon. Secretary.

International Congress of Physiopathology of Animal Reproduction and Artificial Insemination, Copenhagen, Denmark, July 7-10. Prof. Ed. Sorensen, The Royal Veterinary and Agricultural College, Bülowsvej 13, Copenhagen V, Denmark.

International Congress for Thermalism and Climatothalassotherapy, Nice-Cannes, France, April 3-8.

International Congress of Urology, The Waldorf-*Astoria*. New York, N. Y., U. S. A., Sept. 15-18. Dr. John A. Taylor, 2 East 54th St., New York, N. Y., U. S. A., Secretary-General.

International Society of Geographic Pathology, Liège, Belgium, July 15-18. Dr. Fred C. Roulet, Habelstr. 24, Basel, Switzerland, Secretary General.

International Union Against Tuberculosis, Rio de Janeiro, Brazil, Aug. 24-27. *Prof. Etienne Bernard, 66 Blvd. St. Michel, Paris 6e, France,* Secretary-General.

Neuroradiologic Symposium, Stockholm, Sweden, Sept. 17-20. Docent Ake Lindbom, Symposium Neuroradiologicum, Serafimerlasarettet, Stockholm K., Sweden, Secretary.

Pan-American Congress of Gastroenterology, Mexico City, D.F., May 11-17. Dr. R. Flores-Lopez, Calle Dr. Balmis, No. 148, Mexico City, D.F., Secretary.

Pan-European Congress of Gastroenterology, Bologna, Florence and Rome, Italy, April 20-26. Prof. Guido Bassi, Policlinic of St. Orsola, Bologna, Italy, Secretary.

World Medical Association, Athens, Greece, Oct. 12-16. Dr. Louis H. Bauer, 2 East 103d St., New York 29, N. Y., Secretary General

# EXAMINATIONS AND LICENSURE

## NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Part II*, April 21-22; *Parts I and II*, June 18-20; *Part I*, September. All centers where there are five *or more candidates. Exec. Sec.*, Dr. John P. Hubbard, *225 S. 15th St.*, Philadelphia 2.

## EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: Various Locations, July 18. Final date for filing application was Jan. 18. Sec., Dr. C. B. Hickcox, 80 Seymour St., Hartford 15.

American Board of Dermatology and Syphilology: *Oral.* Chicago, May 1952. Final date for filing application was Feb. 1, 1952. Candidates must have completed three years of approved training prior to July 1, 1952. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

American Board of Internal Medicine: *Written.* Various centers and overseas, Oct. 20. Closing date for the acceptance of applications for the written examination will be May 1. *Oral.* Cleveland, April 17-19; Chicago, June 5-7, San Francisco, September or October; New York City, November or December. Subspecialty: Gastroenterology. *Examination.* Chicago, June 7. Exec. Sec.-Treas., Dr. William A. Werrell, 1 West Main Street, Madison 3.

American Board of Neurological Surgery: *Oral.* Chicago, May 1952. Final date for filing applications for the May 1952 *examination* was Jan. 1. Sec., Dr. W. J. German, 789 Howard Ave., New Haven 4, Conn.

American Board of Obstetrics and *Gynecology: Oral. Chicago*, June 9-13, 1952. Final date for filing application was Feb. 1, 1952. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: *Practical.* Philadelphia, *May* 29-June 3; Chicago, Oct. 6-10 and New York City, June 6-10, 1953. Sec., Dr. Edwin B. Dunphy, *56 Ivie Road, Cape Cottage*, Maine.

American Board of Orthopaedic Surgery: *Part I.* San Francisco and Washington, D. C., April 25-26. Sec., Dr. Harold A. Sofield, 122 South Michigan Ave., Chicago 3.

American Board of Otolaryngology. Toronto, May 13-17; Chicago, Oct. 6-10. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

American Board of Pediatrics: *Oral.* Washington, *D. C.*, May 2-4; San Francisco, late June; Chicago, October and Boston, late November. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of *Physical Medicine* and Rehabilitation: *Parts I and II.* Chicago. June 8 and 9. Sec., Dr. Robert L. Bennett, Georgia Warm Springs Foundation, Warm Springs, Ga.

American Board of Plastic Surgery: *Oral and Written.* St. Louis, May 17-19. Sec., Dr. Bradford Cannon, 4647 Pershing Ave., St. Louis 8.

American Board of Preventive Medicine and Public Health. *Written.* Berkeley, Calif., Minneapolis, New Orleans and Baltimore. April 18. Sec., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore.

American Board of Proctology. *Part I.* Kansas City, Minneapolis, Philadelphia and San Francisco. May 3. Examination includes both oral and written examinations in the basic sciences. *Dates and places tentative.* Sec., Dr. Louis A. Buie, 102-110 2d Ave., S.W., Rochester, Minn.

American Board of Psychiatry and Neurology: Chicago, June 13-14. Final date for filing applications was March 15. New York City, Dec. 15-16. Final date for filing applications is Sept. 15. Sec.-Treas., Dr. David A. Boyd, Jr., 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: *Oral.* Spring 1952. Final date for filing application was Dec. 31. Sec., Dr. B R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various Centers. October 1952. Sec., Dr. J. Stewart Rodman, 225 15th St., Philadelphia.

# DEATHS

**Bowen, Byron Darius,** Ridgeway, Ont., Canada; born in Almond, N. Y., in 1889; University of Buffalo School of Medicine, 1914; fellow of the American College of Physicians; member of the American Medical Association, Medical Society of the State of New York, American Society of Clinical Investigation, American Clinical and Climatological Association, Association for the Study of Internal Secretions and American Psychosomatic Society; formerly practiced in Buffalo, where he was associated with the University of Buffalo School of Medicine as assistant, associate, and clinical professor of medicine and for many years on the staff of Buffalo General Hospital; specialist certified by the American Board of Internal Medicine; died in Buffalo General Hospital Dec. 30, aged 62.

**Arn, Elmer Raymond** ⊕ Dayton, Ohio; born in Arnheim, Ohio, July 8, 1886; Ohio-Miami Medical College of the University of Cincinnati, 1911; member of the founders group of the American Board of Surgery; a fellow and served on the board of governors of the American College of Surgeons; one of the founders and a past president of the American Association for the Study of Goiter; president of the George Washington Masonic National Memorial Hospital; consulting surgeon, Good Samaritan and Veterans Administration hospitals and Miami Valley Hospital, where he died Dec. 24, aged 65, of arteriosclerosis, and nephrosclerosis.

**Smith, Edward Shepard,** Westfield, Mass.; Albany (N. Y.) Medical College, 1899; member of the American Medical Association; fellow of the American College of Surgeons; served as an honorary vice president of Hampden County Tuberculosis and Public Health Association; for many years medical examiner of the fourth Hampden District; from 1934 to Jan., 1939, chief of staff at Noble Hospital, where for many years he was a member of the medical and surgical staffs and a member of the executive committee; medical examiner for the New York Central Railroad; died Dec. 9, aged 74, of congestive heart failure and diabetes mellitus.

**Soresi, Angelo Luigi** ⊕ Stamford, Conn.; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1903; formerly professor of the principles of surgery at the New York Homeopathic Medical College, Flower and Fifth Avenue Hospitals in New York; fellow of the International College of Surgeons, International College of Anesthetists, French Surgical Society, and the Italian Surgical Society; a surgeon in the Italian Army during World War I; attending surgeon from 1920 to 1939, when became honorary consultant in surgery, at the Greenpoint spital in Brooklyn, where he died December 11, aged 74, of rt failure.

**iller, Iva Mabelle Townsend** ⊕ Indianapolis; American College of Medicine and Surgery, Medical Department of Valparaiso University, Chicago, 1906; for many years a medical missionary in China and medical director of Isabella Fisher Hospital in Tientsin; at one time field secretary, Medical Women's National Association; formerly connected with the division of maternal and child hygiene Illinois State Department of Health; held similar positions in Indiana and in New York; died in Methodist Hospital, Dec. 5, aged 71, of bronchogenic carcinoma.

**Bains, Richard Cornelius,** Bessemer, Ala.; Birmingham Medical College, 1898; member of the American Medical Association; served during World War I; died Dec. 2, aged 87, of heart failure.

**Beatty, William Henry,** Blackwood, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1901; died recently, aged 78, of carcinoma.

**Blair, John Frederick** ⊕ Whitefish Bay, Wis.; St. Louis University School of Medicine, 1923; died Dec. 19, aged 58, of coronary thrombosis.

**Booth, George Wythe** ⊕ Rockymount, Va.; Medical College of Virginia, Richmond, 1925; died recently in Jefferson Hospital Roanoke, aged 65, of leukemia.

**Clizer, Charles Benton,** Tekoa, Wash.; Georgetown University School of Medicine, Washington, D. C., 1914; member of th American Medical Association; served during World War I affiliated with Deaconess and St. Luke's hospitals in Spokane died Dec. 11, aged 63, of cerebral thrombosis.

**Cottrell, Laura Murphy** ⊕ Sebring, Fla.; College of Physician and Surgeons of Chicago, School of Medicine of the Universit of Illinois, 1912; an Affiliate Fellow of the American Medica Association; died in Orlando recently, aged 70, of a tumor o the interauricular septum.

**Doherty, Elijah William,** Toledo, Ohio; Ohio Medical Univer sity, Columbus, 1898; member of the American Medical Asso ciation; past president of the Academy of Medicine of Toled and Lucas County; affiliated with Mercy and Flower hospital died Nov. 29, aged 78, of coronary occlusion.

**Dwight, Kennie M.,** Muskogee, Okla.; University Medical Co lege of Kansas City, 1899; died Dec. 8, aged 86, of myocarditi

**Edwards, Claud Welch,** Memphis, Tenn.; Memphis Hospit Medical College, 1904; physician at the Memphis Gener Depot; died Dec. 3, aged 74.

**Frankel, Florence Hulton** ⊕ Nyack, N. Y.; University and Belle vue Hospital Medical College, New York, 1924; served on th staff of the Montefiore Hospital for Chronic Diseases in Ne York; died Dec. 21, aged 65, of cardiovascular disease.

**Graham, Charles Franklin,** Pittsburgh; University of Pittsburg School of Medicine, 1933; member of the American Medica Association; served during World War II; died in Elizabeth Stee Magee Hospital recently, aged 45, of multiple myeloma.

**LeFevre, Harry M.,** Shelbyville, Mo.; Hospital College of Med cine, Louisville, Ky., 1898; member of the American Medic Association; died Dec. 15, aged 79.

**McCready, La Mott Rhodes,** Grand Rapids, Mich.; Illino Medical College, Chicago, 1896; died Dec. 13, aged 76.

**Oglesby, James Van Pelt,** Sherman Oaks, Calif.; University an Bellevue Hospital Medical College, New York, 1902; died i Mountain Lakes, N. J., Dec. 13, aged 80, of acute coronar occlusion and tabes dorsalis.

**Peelor, Edwin Claude,** Clinton, Mo.; Missouri Medical Colleg St. Louis, 1895; member of the American Medical Associatio served during World War I; died in Clinton General Hospit Dec. 9, aged 82, of cirrhosis of the liver.

**Rapuzzi, Joseph Edward** ⊕ Abingdon, Ill.; University of Vermo College of Medicine, Burlington, 1915; affiliated with St. Mary and Galesburg hospitals in Galesburg; died Jan. 17, aged 59, carcinoma.

**Siberts, Frank Leslie,** Hampton, Iowa; State University of Io College of Medicine, Iowa City, 1904; health officer; preside of the staff, Lutheran Hospital, where he died Dec. 7, aged 7 of myocardial infarction.

**Tippin, Philip Henry Mulcahy,** Brewton, Ala.; Medical Colle of Alabama, Mobile, 1894; died in Escambia County Hospit Dec. 8, aged 82, of carcinoma of the stomach.

**Webber, Nathaniel Brewster,** Hialeah, Fla.: Detroit College Medicine, 1902; died Dec. 15, aged 69, of cerebral hemorrhag

**Wise, Bowman Joel,** Plains, Ga.; Medical Department of Tula University of Louisiana, New Orleans, 1914; died in Americ recently, aged 63, of coronary occlusion.

**Wright, James Berzelus** ⊕ Weatherford, Texas; Memphis (Ten Hospital Medical College, 1903; died recently, aged 74, of co nary thrombosis.

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⊕ Indicates Fellow of the American Medical Association.

# GOVERNMENT SERVICES

## DEPARTMENT OF DEFENSE

**Induction of Priority 1 Doctors Delayed.**—The Department of Defense has requested the Selective Service System to further postpone until May, 1952, the induction of 485 priority 1 physicians originally scheduled to be inducted in August and September, 1951. The Department of Defense emphasized that this delay is possible because at the present time there are sufficient numbers of priority 1 type reserve officers to meet military requirements for individual calls to active service. The primary source of these reserve officers has been priority 1 registrants who accepted reserve commissions. If, in the future, the number of registrants who accept reserve commissions should fail to meet requirements, it will become necessary to make up shortages through induction.

Priority 1 medical registrants are those who participated as students in the Army Specialized Training Program or similar programs administered by the Navy, and who were deferred from service during World War II to attend medical school and who have served less than 90 days in the Armed Forces, the Coast Guard, or the United States Public Health Service subsequent to the completion of or release from the programs or courses of instruction.

## NAVY

**Award to Naval Hospital.**—The Secretary of the Navy has awarded the Navy Unit Commendation to the Naval Hospital, Yokosuka, Japan. The citation reads as follows:

> For extremely meritorious service in the treatment and hospitalization of 5,804 war casualties and other patients from 5 December 1950, to 15 January 1951. Although still in the process of expanding from a 100-bed dispensary to a 800-bed hospital, the United States Naval Hospital, Yokosuka, Japan, admitted and treated 4,312 casualties during the 10-day Period from 5 to 15 December, 2,022 of whom were received during the peak period of 6-7 December 1950. Interested solely in saving lives and bringing physical comfort to the increasing stream of wounded, the staff exerted maximum effort in preparing additional space for the proper care of its patients. With the already inadequate facilities tremendously overtaxed, the limited number of personnel worked long, arduous hours, sacrificing much-needed rest to provide medical treatment and other essential services to this overwhelming patient overload caused almost wholly by the influx of United States Marine Corps members who had been wounded when suddenly trapped by aggressor forces in the Chosin Reservoir area. By its resourcefulness, zeal and initiative in the face of many complex adversities, this gallant organization saved the lives of numerous casualties, thereby upholding the highest traditions of the United States Naval Service.

All personnel attached to and serving with the Naval Hospital, Yokosuka, Japan from Dec. 5, 1950, to Jan. 15, 1951, are authorized to wear the Navy Unit Commendation ribbon.

**Captain Poppen Honored.**—Capt. John R. Poppen, MC, retired, inactive, was presented with the John Jeffries Award at the honor night dinner of the Institute of Aeronautical Sciences, Jan. 28, in New York. Captain Poppen is the second Naval medical officer to be so honored. Among his contributions to the advancement of aeronautics through research were his findings relative to acceleration and its effect on pilots. This research led to the development of the G-suits currently used by Naval aviators. Captain Poppen was placed on the retired list on Jan. 1, 1952, after completing more than 34 years of active duty.

**Personals.**—Capt. William M. Silliphant, MC, former director of laboratories, Naval Medical School, Bethesda, Md., has been appointed deputy director, Armed Forces Institute of Pathology, Washington, D. C. Dr. Silliphant is a diplomate of the American Board of Pathology and a fellow of the American Society of Clinical Pathologists.——Rear Admiral Lamont Pugh, Surgeon General of the Navy, addressed the senior students, interns, and residents of Georgetown University Medical School and Hospital, Washington, D. C., March 6, presenting a biographical sketch of Dr. Benjamin Rush.

## AIR FORCE

**New Physical Standards Chief.**—Col. John A. Schindler has assumed the duties of chief of the physical standards division in the directorate of professional services in the Surgeon General's office. He is also urologic consultant, and formerly was air surgeon for the Tactical Air Command. Colonel Schindler replaces Col. Emmert C. Lentz, who is now surgeon, Maxwell Air Force Base, Ala.

**Award to Major Stapp.**—The Legion of Merit has been awarded to Maj. John P. Stapp, now with the Wright Air Development Center's Aero Medical Laboratory in Dayton, Ohio. Major Stapp was cited for "exceptionally meritorious conduct in the performance of outstanding service from March, 1947 to June 30, 1951, on human tolerance to abrupt deceleration." The citation also credited him with aiding in the development of protective devices.

**New Chief of Preventable Diseases Branch.**—Col. Max Boyd McQueen, MC, a diplomate of the American Board of Preventive Medicine and Public Health, has assumed the duties of chief of the preventable diseases branch in the Preventive Medicine Division, Office of the Air Force Surgeon General. Colonel McQueen entered the service in 1940 and in 1947 he returned to the Idaho State Department of Health as a district officer.

**Personal.**—Lt. Col. John P. Harney, MC, has reported to the Reese Air Force Base, Texas, for duty as wing surgeon and commanding officer of the 3,500th medical group, succeeding Col. I. Louis Hoffman, who now is in Europe.

## VETERANS ADMINISTRATION

**Dr. Abt to Direct Radioisotope Unit.**—The appointment of Dr. Arthur F. Abt to the position of director, Radioisotope Unit, which is to be established within the Veterans Administration Hospital now nearing completion in Durham, N. C., has been announced by Adm. Joel T. Boone, chief medical director. In the meantime, Dr. Abt will be associated with the Radioisotope Unit at the Veterans Administration Hospital at Hines, Ill., and the Radioisotope Section, Central Office, Washington, D. C., pending completion of construction of the hospital at Durham. Dr. Abt has been engaged in the private practice of pediatrics in Chicago, where he has been attending pediatrician, at Sarah Morris Children's Hospital and consulting pediatrician at the U. S. Naval Hospital, Great Lakes, Ill.

Dr. Abt was research assistant in physiologic chemistry at Johns Hopkins University in 1919, resident house officer at Harriet Lane Home, Johns Hopkins Hospital, 1923, and resident in pediatrics, Sarah Morris Children's Hospital, 1924. In his research activities, Dr. Abt has served as director of nutrition research in the coordinated project sponsored by U. S. Public Health Service, Chicago Board of Health, and Northwestern University Medical School. During World War II he served four years in the U. S. Navy and rose to the rank of captain. He was staff medical officer in two invasions with Task Force 32, Amphibious Group V, Pacific Fleet, and during this time, was awarded a letter of commendation for research in chemical warfare by the Surgeon General, U. S. Navy. He received the Navy Unit Citation for Battle Service in the USS Mt. McKinley; and a citation from the office of scientific research and development for research in the war effort. Dr. Abt is a diplomate of the American Board of Pediatrics; member of the Chicago and Illinois State Medical Societies; Fellow of the American Medical Association, Institute of Medicine, Chicago, and American Academy of Pediatricians; member of the American Pediatric Society, Sigma Xi, and the American Association for the Advancement of Science.

# FOREIGN LETTERS

## ARGENTINA

**The Fight Against Chagas' Disease.**—The Ministry of Public Health has organized the National Service Against Chagas' Disease and has appointed as director Dr. Cecilio F. Romana, whose research in this disease is well known, and who is director of the Institute of Regional Medicine in the University of Tucuman. The province of Mendoza has also organized an intensive campaign against this disease.

Prophylaxis consists chiefly in destruction of the intermediate agent, the Triatoma infestans, an insect commonly found in houses in the affected area. This insect can be made to disappear for about three months by using "gammexane" and chlordane. "Gammexane" is sprayed in a solution at 5 or 10%, at the rate of 500 mg. per sq. m. DDT kills many insects, but not all of them, even when used in a concentrated form at 25%. The most efficient method of prevention is to build houses with walls and rooms without cracks or openings, so that the insects cannot shelter and sting and suck blood during the night.

Dr. J. W. Abalos and Dr. P. Wygodzinski from the Institute of Regional Medicine at Tucuman have published an interesting monograph on Triatomae in Argentina in 1951.

**In Honor of Dr. Ricardo Finochietto.**—The "Confederacion General del Trabajo" (labor union), in a public ceremony patronized by the Ministry of Public Health, gave a medal to Dr. Ricardo Finochietto "in account of the surgical operation he performed for the cure of Mrs. Eva Peron."

**Inter-American Congress of Cardiology.**—The Argentine Society of Cardiology organized a Pan-American Congress of Cardiology, which will be held in Buenos Aires next September. The authorities of the city will give it their full support.

## COLOMBIA

**National Meeting of Surgeons.**—The First National Meeting of Colombian Surgeons, held in Bogotá, Oct. 28 to Nov. 4, 1951, was attended by more than 400 surgeons. The program included operations in various hospitals of Bogotá, scientific sessions, surgical films, and exhibits of surgical instruments, books, and drugs. The congress was organized by the Society of Surgeons of Cun[illegible]marca, a branch of the Colombian Association of Surgeons. [illegible]. Jorge Suárez Hoyos of Bogotá presided. Dr. John J. Conley, the United States surgeon, and Dr. Oswaldo Rodríguez Morales, neurosurgeon of Ecuador, attended the congress by special invitation. Dr. Conley, specialist in vascular surgery and physician at Memorial Hospital of New York, performed operations in his specialty and gave a lecture on research in cardiovascular surgery. The following articles read during the congress deserve special mention: "Surgery of Biliary Lithiasis and of Its Sequels: A Statistical Study," by Drs. Hernando Anzola Cubides, Juan Di Doménico, Carlos Camacho, Mario Negret López, Eugenio Ordóñez, Rafael de Zubiría, Carlos Mogollón, and Alberto Escallón Azcuénaga of the department of gastroenterology of the Hospital San José; "Pulmonary Resection of Lung and Thoracoplasty in Treatment of Pulmonary Tuberculosis: Experience in the San Carlos Hospital," by Drs. Alfredo Artunduaga and Ricardo Vargas Iriarte; "Frequency of Cancer of Prostate," by Dr. Pablo Gómez Martínez; "Errors and Complications in Biliary Surgery," by Dr. José A. Jácome Valderrama, head of the National Institute of Radium; and "Preliminary Report on the First Cases of Angiocardiography in the Hospital de la Misericordia of Bogotá," by Drs. Gonzalo Esguerra Gómez, Calixto Torres Umaña, and Santiago Triana Cortés.

**Deaths.**—Dr. César Uribe Piedrahita, aged 54, died suddenly on Dec. 18, 1951, from cardiac infarction. He was born in Antioquia and devoted his life to research and writing in various fields of medicine. He graduated from the University of Antioquia and did postgraduate work at Harvard University. Dr. Uribe Piedrahita held the following positions: head of the National Institute of Hygiene, professor of parasitology at the National University, and dean of del Cauca University. He was a delegate to several international scientific congresses and the founder of the CUP Laboratories, a well-known center for the preparation of drugs. He wrote several articles and books on parasitology and protozoology. Of great interest also are his books on biology of the amebas, reduviida and trypanosomas, "niaara" poison, Colombian digitalis, and the poison of the "dendrobates chocoensis" frog. Dr. Uribe Piedrahita is the author of two novels, "Toa" and "Mancha de Aceite," which describe the ways of living of the workers in the rubber industry in the Amazon regions and in the oil wells in Venezuela, respectively. Dr. Uribe Piedrahita carried on interesting studies of civilization of Colombian Indians of the remote past. He also studied archeology, ethnography, and arts and idioms of the aborigines. He made paintings and carved work.

**Personal.**—Gladys L. Hobby, Ph.D., co-discoverer of terramycin and head of the scientific department of Chas. Pfizer & Co., Inc., New York, visited Bogotá during the week of Dec. 9 to 16, 1951. She lectured on terramycin, in various centers of scientific investigation and laboratories of Bogotá, Medellín, and Barranquilla during her stay in Colombia.

## ITALY

**International Convention of Hematology.**—The third convention of the European International Society of Hematology was held in Rome under the chairmanship of Prof. Giovanni Di Guglielmo, director of the University of Rome Medical Clinic and also chairman of the society. Prof. J. H. Lawrence of the United States, who spoke at the invitation of the society, reported on the use of isotopes in scientific research and in hematological therapy. Mallet, Marchal, and Duhamel (France) reported they had obtained good results in the treatment of two patients with mycosis fungoides and two with Hodgkin's disease with radioactive arsenic; however, they stated that selective dermotropic fixation of beta and gamma rays limits application of radioactive arsenic to cutaneous forms of Hodgkin's disease. They also reported on the results obtained in various diseases with cortisone and corticotropin (ACTH). Effects of these drugs varied in acute leukemia and chronic lymphadenosis. A startling remission was observed in one patient with a severe case of Hodgkin's disease, but effects were uncertain in other patients. The speakers pointed out that among the dangers of the new hormone therapy was the possibility of its causing pulmonary edema or acute hypoadrenalism.

*New Methods of Investigation in Hematology.*—Many speakers discussed new methods of histochemical and physical investigation in hematology. Laves (Germany) discussed the results obtained with the cytoenzymatic technique in studying the distribution of ribonucleic proteins and desoxyribonucleic proteins in the nuclei of leukocytes. From the data obtained, it appears that these proteins are present in the nucleus in various proportions. He pointed out that, from the cytochemical point of view, neutrophil granulocytes are different from all the other leukocytes, while the stem cells are in an intermediary position. Physical investigation reports were given on phase microscopes, ultraviolet microscopes, electron microscopes, and electrophoresis.

*Reticulosis and Reticuloendotheliosis.*—Reticulosis and reticuloendotheliosis were discussed by many foreign and Italian speakers. Zeidenrust (Holland) asserted that Aschoff's concept of the reticuloendothelial system has had an important influence on the study of reticuloses that are characterized by a systematic

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The items in these letters are contributed by regular correspondents in the various foreign countries.

proliferation of reticuloendothelial cells; but, because this definition of reticulosis covers a large number of well-known diseases, he believes the definition should be restricted to fewer morbid entities. Rohp (Switzerland) discussed "reactive" reticulosis of the bone marrow and asserted that in the concept of reticular tissue not only the true reticular elements but also the histiocytic elements must be considered, because both constitute a functional unit. In addition to typical granulomas, he considered granulomas caused by a virus, as in mononucleosis and epidemic hepatitis. He discussed some forms of reticulosis, including hyperglobulinemia, medullar lymphadenosis, and osteomyeloreticulosis, and mentioned that classification of these diseases is still uncertain. Cazal (France) reported on clinical and hematological aspects of malignant reticulosis. He discussed the clinical polymorphism of this disease and classified it into three clinical types: (1) visceral or acute, subacute, and chronic pseudoleukocytic forms, (2) nodular and ulcerous dermatological forms (erythrodermic forms are rare), and (3) forms that occur in early childhood (Letterer-Siwe's disease). Revel and Morel (France), on the basis of their observations in 50 cases seen in the last two years, asserted that the distinction between reticulosis and reticulosarcoma is still indefinite and that the criteria of distinction between them differ according to the points of view of the different schools.

*Corticotropin (ACTH) and Cortisone in Hematology.*—Burchenal (United States) pointed out that cortisone and corticotropin (ACTH) have a pronounced though transient effect on the course of acute leukemia, especially in young patients. Heilmeyer (Germany) systematically discussed the action of cortisone and corticotropin on the various blood elements in normal and pathological conditions and concluded that, although the use of these hormones is advisable, the excessive optimism existing today regarding them needs to be tempered. Anticoagulant therapy and fibrinolysis were also discussed.

## LONDON

**Health Centers.**—In all the discussions that preceded and accompanied the passage of the National Health Service Act to the statute book, emphasis was consistently laid on the importance of the health center to the service. This was to be the focal point of the entire service, a point at which the three main branches, the general practitioner service, the specialist service, and the local authority service, would meet and be coordinated.

The idea of health centers first came to the fore in the "Interim Report on the Future Provision of Medical and Allied Services" of the consultative council on medical and allied services of the Ministry of Health. This report, commonly referred to as the Dawson Report after the chairman, the late Lord Dawson of Penn, was presented in 1920. It recommended that domiciliary practice be based on a primary health center, defined as "an institution equipped for services of curative and preventive medicine to be conducted by the general practitioners of the district in conjunction with an efficient nursing service and with the aid of visiting consultants and specialists." The function of these health centers was worked out with a wealth of detail that even included a memorandum on designs of detailed plans for their sites and structure. Their distinguishing feature was to be that they would be staffed by general practitioners. Accommodation would consist of wards in which general practitioners would be able to treat milder cases of illness that did not require transference to the hospital and also deal with midwifery. In addition, there would be accommodations for all the ancillary services, such as an operating theater, pathology laboratories, and an x-ray department. The centers would be not only curative in function but also preventive, and in them would be centralized child welfare, antenatal, and tuberculosis clinics; these clinics would be conducted by the general practitioners. According to the report, the health centers "would be the home of the health organization and of the intellectual life of the doctors of the unit . . . there would develop an intellectual traffic and a camaraderie to the great advantage of the service." The primary health centers were to be linked up, in each area, with secondary health centers that were situated in towns and whose services would be mainly consultative. These centers would receive patients referred from primary centers, either because of difficulties of diagnosis or because, in their diagnosis or treatment, highly specialized equipment was necessary. The duties of the consultants by whom the secondary centers were staffed would include attendance in outpatient clinics, attendance in the wards on the patients referred to them, and periodical as well as special emergency visits to the primary health centers allotted to them.

This was the original outline for health centers. A major modification that the passage of time has indicated is the replacement of the secondary centers by the outpatient departments of hospitals and the increasing emphasis on the importance of consultants being available for consultation in the primary health centers.

In the national health service, this vital link in its organization was the first victim of the financial stringency that has dominated the country in these postwar years. Health centers have been excluded from the building priority list of the country; however, the Nuffield Provincial Hospitals Trust has included health centers in its investigation of "some of the questions that need to be answered before the national health service can provide the best possible service to the patient." Its aim is to test and demonstrate various conceptions of a health center. For this purpose, it has selected three different types of center. One is a teaching health center attached to the medical school of the University of Manchester, which is designed for the practical instruction of medical students in the work of general practice. The second is a diagnostic health center, including maternity beds and beds that general practitioners can use for the treatment of their patients, in the new town of Corby in Northamptonshire. The third type is a simple health center in the new town of Harlow in Essex, some 20 miles to the northeast of London.

The Harlow health center was officially opened recently by the parliamentary secretary to the Ministry of Housing and Local Government. The ultimate population of Harlow will be 80,000, and the Essex County council, as the local health authority, has prepared plans for four large health centers to supply the population with clinic and general practitioner services. These centers, however, cannot be built in the immediate future, and there is the problem of providing the new population (now in the region of 3,000) with medical services. The Harlow Development Corporation, anxious to provide the growing population with adequate medical services and wishing to avoid the growth of individual practices in isolated offices attached to houses, decided to use two semidetached lower income group houses as a temporary health center. This decision was made in consultation with the local executive committee (the committee for the local administration of the general practitioner service under the national health service) and the Essex County council. The former group agreed to the direct letting, by the corporation, of accommodations to physicians and a dentist, whereas the county council agreed to lease, from the corporation, part of the accommodations for clinic purposes for five years. The final obstacle to be overcome was a financial one; if the corporation used these two houses for this purpose, they would lose the government subsidy (equivalent to a capital cost of approximately £1,100). As the corporation must carry out all its operations without taking a financial loss, they had to seek outside help if the scheme was to be effective. It was at this stage that the Nuffield Provincial Hospitals Trust stepped into the picture and made a grant of £2,450 to the corporation.

The total cost of the building and furnishings provided by the corporation, including fees, is approximately £6,500. The building contains three physicians' offices with adjoining examination rooms, a dental office with a dental mechanic's room and a dental x-ray room, and rooms for maternity and child welfare clinics, minor ailments, and school medical services. There are two waiting rooms that are used by both the clinics and the physicians and dentist's offices and fitted with electric signs indicating when the next patient is wanted. Personal inspection of the center prior to the opening ceremony provided ample evidence of the excellent way in which the comfort of both patients and physicians, and the efficiency of the latter, had been attained. The decorations are plain but attractive; the waiting room furniture is of the better modern type, in which appearance has not been completely sacrificed to utility or comfort. In addition, there are all the necessary ancillary services, such as toilet accommodation, a perambulator shed, and cleaning rooms. One general practitioner and one dentist are already installed in the center, and a second and a third practitioner will be added to the staff as the population grows. It is estimated that the center will be capable of serving a population of 10,000 persons. The management of the center is in the hands of a small committee, consisting of the practitioner, the dentist, a representative of the Essex County council, and a member of the corporation; they will be responsible for the day-to-day working of the center.

This experiment will be watched with the closest interest by all concerned with the running of the national health service and not least by those general practitioners who have been wondering with diminishing hope, for the last three years, whether the many sacrifices they had to make would ever be compensated for by the advantages that would accrue from working in a well-organized health center. An interesting feature of the Harlow health center is its relatively low cost.

**Isotope Radiography.**—"These radiographs of the jaw differ from any taken before; and though the accompanying picture, obtained by five minutes' exposure of the living hand, has less obvious technical merit, it should be regarded respectfully as a part of radiological history." With these words, the *Lancet* concludes an editorial introducing an article on radiography of the human body with radioactive isotopes by W. V. Mayneord, professor of physics at the Royal Cancer Hospital, London. The substance used was thulium 170; this element emits gamma rays with an energy of approximately 84 kv., in addition to beta rays. The beta rays fall into two groups with maximum energies of 884 and 968 kv. respectively. A total of 76% of the beta particles belong to the second group. The half life of thulium is 127 days. Although thulium is an expensive material, its cost is offset by the fact that its life is virtually infinite, as it can be replaced in the pile and reactivated when necessary. An advantage claimed for the use of a strong radioactive source as a radiographic focus is that it may be possible to "obtain some unconventional view of structures often confused by superimposition in the normal radiographic techniques." A great disadvantage is the long exposure required. Three radiographs are reproduced in this article. One radiograph is of a dried skull and is outlined by placing the thulium in the center of the buccal cavity; this gives a satisfactory picture of a number of teeth simultaneously. The second radiograph is of a dried skull and was obtained by placing the thulium in the nasopharynx; it is notable for its freedom from shadow of other structures. The third radiograph is of a living hand and was taken with thulium source at 6 cm. and with five minutes' exposure. It is considered t "radioactive isotopes are unlikely to compete seriously with classical radiographic techniques, because very large amounts adioactive material would be required; but the advantages, in oth peace and war, of a small source of x-radiation, free from electric mains and complex equipment are apparent." Another possible use is in the localization of foreign bodies in the body, using an apparatus incorporating a radioactive isotope and a Geiger counter.

**Three Groups of Referees Decide on Prescription.**—A board of referees decides whether a preparation prescribed by a family physician has been properly prescribed under the rules of the National Health Act. Between Dec. 24, 1949, and Jan. 16, 1950, a family physician prescribed three and a half bottles of brandy for a woman patient, 46 years of age, with incurable carcinoma of the bronchus. The brandy had been used for making a mixture containing morphine, cocaine, syrup, and some coloring matter, in the proportion of seven parts of brandy to one part of all the other substances. The patient took a dose every four hours, and, on March 6, 1950, she died.

The Middlesex executive council decided that the brandy so prescribed was not a drug or medicine that it was bound to provide, and this decision was upheld by the Middlesex medical committee. The matter was then referred to the board of referees. The physician, in defense of his action, said that his primary object was to relieve pain and anxiety regarding imminent dissolution, and, in his opinion, brandy helped do this. The mixture was recommended to him by the radiotherapist, who, presumably, had considerable experience with these cases, and he regarded it as his duty to do everything possible to make the remaining weeks of the woman's life as comfortable as possible. When he learned that brandy had been disallowed, he substituted chloroform water. He did not find this as beneficial as the brandy.

The executive committee finally decided that the physician had acted in the best interests of the patient and that brandy, in this instance, did have some beneficial effect.

## LUXEMBOURG

**Infant Mortality.**—An inquiry made by Ginette Kohner, member of the Ministry of Health and secretary of the Society of Social Hygiene, and works published by her and by Dr. Mathias Reiles have shown that the figures of infant mortality fluctuated, between the years 1946 and 1949, between 7.50% and 4.57%. To improve these figures the Luxembourg Society of Social and School Hygiene has drawn to the attention of members of the government the importance and gravity of this problem and has asked them to take the measures required to remedy the situation at once.

They insist especially on the necessity of the following items: compulsory statements of the cause of death; an inquiry, which would bear on the causes of deaths, the geographical distribution, the social environment of the parents, and the conditions of delivery, in all cases of stillbirths and infant mortality; the introduction of compulsory premarital certificates; compulsory prenatal and postnatal protection, especially for women who work outside their homes and for unmarried mothers; judicious family subsidies and prenatal and postnatal leaves of absence of sufficient length; and the creation of a special service for premature infants, including a reservoir of milk.

They believe that medical assistance should be guaranteed to every woman during delivery; that the present program of consultations for nursing infants should be intensified and extended to all infants in the country by home visits and traveling consultations; that physicians and visiting nurses attached to the consultation services for infants should periodically take refresher courses, just as do midwives; that maternity centers and services for infants should be effectively controlled by the Ministry of Public Health; that the creation of an infants' clinic is a fundamental necessity; that the health education of the population and especially of young women should be made more thorough, and in consequence primary, postscholastic, and intermediate curricula should largely provide for it; that the production and sale of milk and dietetic foods for infants should be rigorously controlled; and that the fight for decent housing should be encouraged to the utmost.

**Silicosis.**—Among the pneumoconioses, pulmonary silicosis causes definitive injuries and the most serious lasting disabilities; it often gives rise to actions for compensation on the part of the victims, for in most civilized countries this condition is classed among occupational diseases. In legislation abroad, this condition is considered as an occupational disease only if it causes a serious disability or is associated with tuberculosis.

Luxembourg legislation relating to silicosis is concerned with all occupations that expose a person to the inhalation of fine dust of oxide of silica or silicates capable of producing silicosis: (1) in the underground mines of the mining basin where workers work in the siliceous strata; (2) in the stoneworks and at the hewing of stones from strata of Liassic and Triassic sandstone; and (3) in the production of ceramic products.

Contrary to foreign legislation, which requires a certain degree of severity in the disease before granting compensation, the Luxembourg law does not define the degree of silicosis at which the right to indemnification from the Accident Insurance Association (Industrial Section) begins; the determination of severity and the initiation of action for indemnity are left first to the discretion of the attending physician; then the advisory physician of the insurance office and, finally, experts are called upon to decide the acceptability of the case. Luxembourg legislation does not provide for the existence of pulmonary silicosis among workers in the slate works and slate quarries; nevertheless, the etiology in these cases is indisputable.

## PARIS

**ACTH, Cortisone, and Malignant Lymphomas.**—George Marchal, Gérard Duhamel, and Thomas and J. P. Camus have treated 25 malignant lymphomas with corticotropin and cortisone. The best results were obtained in Hodgkin's disease; in the first eight patients, there were four temporary successes. Of the three failures, two were experienced with cortisone and one with corticotropin. In seven cases of acute leukemia, the only encouraging result occurred in a four-year-old girl. In this patient, there was clinical improvement, but the bone marrow did not become completely normal. In three patients with lymphoid leukemia, the reduction in size of lymph nodes, spleen, and liver was inconstant. The effects of corticotropin on lymphocytosis were variable. Of the four patients with multiple myeloma and plasmacytoma, the authors noted encouraging results in two patients with osseous myeloma and extraosseous plasmacytoma; in one patient with multiple plasmacytoma associated with solitary myeloma, corticotropin proved superior to other treatments, but hyperglobulinemia and electrophoretic patterns were not influenced. In one case of bone marrow depression caused by sulfenamides and in one case due to benzene poisoning, corticotropin and cortisone were not beneficial.

*Management of Treatment.*—The choice of hormones was made by means of Thorn's test, which was routinely performed on each patient. The initial dose of cortisone, 100 mg. per day, was later increased to 200 mg. but only rarely to 250 mg. per day; the dose of corticotropin for adults, 75 mg. per day, was increased to 125 mg., and, in a few instances, to 150 mg. A series of treatment usually lasted from three weeks to two months. The effect of a second series proved inconstant; in the course of a third series, the physicians noted, more frequently, resistance to hormones. On the whole, the more frequent and earlier effect was an improvement in general condition and a better appetite, even in patients in whom a slight fever persisted. Erythropoiesis was often stimulated, even without blood transfusions, and, in some patients, a slight polycythemia (5,200,000 and 5,800,000 red blood cells) was noted. Because of their action on pruritus and cutaneous lesions, the authors think that cortisone and corticotropin are particularly indicated for the treatment of the cutaneous forms of Hodgkin's disease and lymphodermia. The lowering of the leukocyte count as well as the reduction of lymphocytes and leukoblasts often occurred slowly; a decrease in the number of eosinophils was particularly noticeable in Hodgkin's disease. Contrary to reports by other authors, the increase of platelets was less constant. Pain in the bones decreased rapidly and sometimes disappeared; moreover, autopsy revealed, in one patient with lymphogranulomatosis, a partial consolidation of vertebral lesions. Marchal and his associates stressed the sensitizing effect of corticotropin and cortisone in radiotherapy.

*Untoward Effects.*—Adrenal deficiency constituted one of the essential risks, and hypertension and acute pulmonary edema were noted in one patient. Cushing's syndrome was frequently observed, especially in children with acute leukemia that was in full remission. In two patients wtih Hodgkin's disease, aphthae appeared on the jugal mucosa and the mucosa of the soft palate; in another patient, there was a relapse of a lung abscess. Hyperactivity and insomnia required the exercise of caution, but no mental disorders were observed.

**Medical Demography in France.**—At a meeting of the "Ordre National des Médecins Français" Lacroix and Magnien presented documents relating to medical demography, which were published in the bulletin of this association (no. 4, December, 1951). The total number of physicians increased from 25,188 in 1935 to 35,585 in January, 1951. The distribution of physicians is very unequal; it oscillates between 1 physician for 600 inhabitants and 1 physician for 2,400. In regard to age, in 1949, 3,492 physicians were under 30 years of age; 9,564 ranged between 30 and 40; 7,300 between 40 and 50; 5,174 between 50 and 60; 3,771 between 60 and 70; and 1,631 were over 70 years of age. Over half of the physicians who became eligible for retirement, at the age of 65, continued to practice. The World Health Organization considers 1 physician for 1,500 inhabitants as optimum. France still has a shortage of physicians. The number of medical students increased from 17,078 in July, 1947, to 19,373 in July, 1950. The authors believe that, within seven years, the number of physicians will increase by 12,000 and will reach 45,000 in 1958; at this period the optimum figure will be attained, and a plethora will occur. They think that measures ought to be taken to avoid this condition. The problem is a delicate one, and there are divergent opinions. The university, wedded to liberal principles concerning the recruiting of students, is against any modification. In a recent congress, students declared themselves to be against any system of competitive or eliminatory examination. On the other hand, there are some facts that, according to certain authors, might act on this eventual plethora as a corrective measure. 1. For the first time for scores of years, French demography shows an increase of population from 41,180,000 inhabitants in January, 1949, to 42,130,000 in January, 1951. 2. It is impossible to foresee the economic development of France during the next 10 years and consequently to make an estimation of the number of physicians needed.

## SPAIN

**Housing for Physicians.**—The National Department of Public Health, aided by the minister of the interior, recently provided physicians practicing in rural regions with houses. Every municipality donated the lots to be used in the project, and citizens contributed voluntarily a certain portion of the work. The rest of the labor as well as the construction material was given by civil governors, deputies of the provinces, and the minister of the interior. Administration of the houses is in the charge of provincial committees, which include the civil governor, the president of deputies, the head of public health, and the mayors of the municipalities. Physicians and general practitioners in the community are entitled to houses, provided that they obtained their positions by appointment. The houses have a section for medical purposes, containing two or three large rooms, and the family's apartment, with five or six rooms. Every physician pays a small rent, never to exceed an annual 2% of the costs of the house, which will be used in the upkeep and improvement of the house. The furniture provided by the National Department of Public Health consists of an operating table, metal chairs, a bookcase, and the necessary surgical equipment. The municipalities provide dressings and drugs. More than 200 of these houses are already functioning as medical centers.

**Marques de Urquijo Foundation.**—The Committee of the Marques de Urquijo Foundation was recently established with the Institute of Spanish Pharmacology. It aims to stimulate scientific research with a view toward making pharmaceutical and chemical industries national; they are not so now. It aims, also, to improve the actual pharmacologic techniques now used in Spain. The committee works in collaboration with the Consejo Superior de Investigaciones Científicas. Drs. D. Benigno Lorenzo Velazquez, professor of pharmacology of the Universidad Central, and José Pardo Urdapilleta were appointed president and vice-president, respectively, of the committee. Dr. Antonio Gallego, professor of pharmacology of the Faculty of Medicine of Cádiz was appointed director of the Instituto de Farmacología.

**Medical Films.**—The Asociación Española de Cinematografía Médica was recently established. The inaugural meeting was presided over by Dr. Jesús García Orcoyen, professor of obstetrics and gynecology and dean of the Faculty of Medicine of the Universidad Central de España in Madrid. The association will produce medical and surgical films and will exchange films with medical film centers in foreign countries. Dr. Juan Fernán Pérez was appointed general secretary of the association. The headquarters of the association are at the home of the general secretary: Fuencarral, No. 113, Madrid. Dr. Juan Fernán Pérez is also the founder of the Asociación Española de Escritores Médicos (Association of Spanish Medical Writers), editor of the journal *Vida Sana,* and medical editor of the daily paper *Madrid.*

# CORRESPONDENCE

## ORIGIN OF MY INTEREST IN VETERAN MEDICAL CARE

*To the Editor:*—Because of my long and well-known interest in veteran medical care, I would like to describe the experience that caused the development of this interest. In 1930, when I was surgical consultant to the Veterans Administration at Nashville, Tenn., a veteran, a tenant farmer, had pain in the abdomen, nausea, and vomiting while working in the field. He went to the house and took salts, and later paregoric. He delayed calling his family physician until about 3 o'clock the following morning, then called Dr. L. F. Loggins of Charlotte, who responded promptly and diagnosed the case as acute appendicitis. He advised immediate hospitalization and operation. The veteran, who lived near Charlotte, about 40 miles from Nashville, had a wife and two children. He said that he was unable to pay the cost of hospitalization, that he had a right to free services in a veteran's hospital, and that he would like to go to Veteran's Hospital no. 88 at Memphis, some 240 miles from Nashville.

Dr. Loggins advised against the delay and travel, but the veteran insisted on his right to free services. Dr. Loggins then administered morphine to the patient, and friends placed him in a car and brought him to Nashville to the District Office of the Veterans Administration. He waited until the doors were opened, at about 8:00 a. m. He made application for admission to a veteran's hospital. He presented the necessary papers to show (1) that he was a veteran, (2) that he had an honorable discharge from the United States Army, and (3) that he was unable to pay for the services he needed.

It was then necessary to determine whether his condition required hospitalization. He was referred to me, as surgical consultant, for this determination. I examined him and confirmed the diagnosis made by Dr. Loggins. It was obvious that the inflammatory process was advancing rapidly and that it was dangerous to delay the operation and dangerous for him to travel the distance required for admission to a VA hospital. I pointed out these dangers to the patient, and proposed to operate free of charge if he could arrange to pay the hospital bill. He declined this offer. I recommended immediate hospitalization.

A vacant bed was then located in Hospital 88 at Memphis. The veteran was placed in a room in the Y. M. C. A. building to await the departure of the next train to Memphis, due to leave at 1:00 p. m. A nurse was assigned to the case and supplied with medication to make the patient comfortable. The patient's wife and children could not afford the trip to Memphis. He was transferred to the train by ambulance. Bedroom accommodations had been arranged for him and the nurse. He was met the following morning at the train by ambulance and was admitted to Veteran's Hospital no. 88. He was operated on as soon as he could be made ready, but by that time a spreading peritonitis had developed. It was necessary to insert a drain and later also to drain other abscesses that formed during his stay in the hospital.

He was finally dismissed from the hospital as a partially disabled veteran. He had an incisional hernia and abdominal adhesions. That experience caused me to think about the dangers and inadequacies of such a program of government medicine for veterans who are unable to pay for these services.

The following facts seemed to stand out as indisputable:

1. The crippled state of Veteran Brown on his arrival home, as well as the dangers to life he underwent, were due entirely to delay, a delay that is unavoidable in such a system of medical care. If he had been admitted to a hospital on his arrival in Nashville and operated on promptly, he would probably have returned to his family in about one week, without permanent disability, able to return to his work in about two more weeks.

2. The hospital and surgical services this veteran needed were available and accessible to him in civilian hospitals in Nashville. ure was the difficulty of Veteran Brown was purely financial—he sumably, had ay for the services he needed. The existence of a financial mechanism by which the services he needed could be financed in a civilian hospital would have solved his problem completely and would also solve the problem of all other veterans in similar circumstances.

On the basis of such facts, I gathered together all available information on the subject of medical and hospital service insurance and prepayment plans. The more I studied the plans the more apparent it became that a medical and a hospital insurance program would fit the needs of such veterans and, at the same time, save large sums of tax money. I then wrote a resolution on the subject and presented it to the House of Delegates of the American Medical Association in Philadelphia in 1931. It was adopted by the House (see minutes of the House of Delegates, 1931). I did this at the risk of losing my job as surgical consultant.

The developments that followed this action of the House made an interesting chapter in American medicine. The resolution received favorable publicity and led to conferences on this subject between leaders in the American Legion and the American Medical Association. In a few days, Watson B. Miller, then chairman of the rehabilitation committee of the American Legion, called Dr. Olin West, then Secretary-Manager of the A. M. A., and requested a conference on the subject between representatives of the two organizations. The first conference was held in the headquarters of the American Legion in Indianapolis, between the rehabilitation committee of the American Legion and the following representatives of the American Medical Association: Dr. E. B. Heckle, Chairman of the Board of Trustees, the late Dr. Ben Wright of Minneapolis, the late Dr. W. C. Woodward, and myself. This is according to the recollection of Dr. West and myself. In the course of this conference, it became apparent to leaders in the American Legion that such a program of government medical care for acute cases was not suited to the needs of veterans, scattered as they are over the country.

It was Mr. Edward Hayes, a member of the rehabilitation committee and, later, national commander of the American Legion, who volunteered information to the effect that the American Legion did not sponsor the amendment to the World War Veteran's Act, which brought about the creation of that system of medical care for acute non-service-connected cases. He also contributed information showing that this amendment was sponsored by persons concerned with the administration of these VA hospitals for the particular purpose of filling the empty beds then existing and of thus preventing any of the hospitals from being closed.

As a result of numerous conferences, agreements were reached between representatives of the American Medical Association, the American Legion, and the Veterans Administration to the effect that:

1. Such a government system of general hospitals for acute cases was not suited to their needs.

2. The maintenance of a government system of hospitals for the care of service-connected cases, tuberculosis cases, mental cases, and certain types of chronic cases was necessary, and the A. M. A. would not oppose the establishment of such hospitals.

3. The American Legion would not sponsor the creation of any more general medical and surgical hospitals, and the A. M. A. would not press for the enactment of the legislation proposed in the resolution.

These agreements were not written and were not published. They were what may be called "gentlemen's agreements." They were kept until after World War II. A review of the construction of new general medical and surgical and special hospitals in the period 1931 to 1945 will confirm the statement that the agreements were kept. It is interesting to note that the same motive that led to the creation of the original amendment is now operating to preserve and expand the same system.

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### PINCH GRAFT

*To the Editor:*—We would like to call attention to the continued use of the "pinch graft" in modern surgery. This graft was first used in the pre-Listerian days and, like many other medical traditions, has continued to survive. Even in modern surgery it is still accepted much as it was in the days of Reverdin and Thiersch. It is not infrequently mentioned as an acceptable technique in modern textbooks of surgery.

It was employed in the past because of the ease with which it could be taken and applied, with a fair percentage of survival in contaminated recipient fields. The donor area is left irrevocably scarred. This is unfortunate not only because of the cosmetic unsightliness but also because the donor areas are often in a portion of the body that is most desirable for use in later definitive reconstructive surgery.

In lieu of the pinch graft, the surgeon may remove a sheet of skin and, if absolutely necessary, cut it into small patches to achieve further coverage. This gives the pinch graft effect on the recipient area, which is admittedly poor but sometimes necessary in desperate cases; however, the donor area is not destroyed. It may be reemployed as a donor area and does not leave the unsightly checkerboard cicatrix or "alligator skin." In the cold light of modern surgery we feel that the pinch graft is archaic and cannot be justifiably employed. This graft should be abandoned.

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### SIMMONDS' OR GLINSKI'S DISEASE

*To the Editor:*—In giving credit to those who have drawn attention to a relation between postpartum hemorrhage and necrosis of the anterior lobe of the pituitary gland and the clinical syndrome that may follow, the work of Glinski should not be overlooked. Glinski has published three papers on pituitary necrosis (*Przegl. lek.* **4**:13 [Jan. 4] 1913; *Now. lek.* **25**:225 [May-Sept.] 1913; *Klin. therap. Wchnschr.* **20**:709, 742, 769 [June 16, 23, 30] 1913) and was probably the first to draw attention to a causal relationship between this condition and atony of the uterus, hemorrhage, and collapse at childbirth. He also drew attention to certain specific signs and symptoms associated with anterior pituitary damage, such as irregular menstruation, complete amenorrhea, changes in the secondary sex characteristics, loss of libido, and atrophy of the sex glands.

He stated that the anterior lobe of the pituitary gland began to enlarge at the fifth month of pregnancy and reached a maximum during labor and up to the fourth week of the puerperium. The color of the anterior lobe during pregnancy was pale, almost white, compared with the normal reddish-brown color, and was due to a diminished blood supply. He also stated that the necrotic lesions were due to vascular thrombosis of the arteries supplying the anterior lobe.

Glinski's papers are available at the Army Medical Library, Washington, D. C., and in order to make his work better known, I annotated his papers recently (*Brit. M. J.* **1**:921 [April 28] 1951).

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### LYSOZYME AND ULCERATIVE COLITIS

*To the Editor:*—The editorial "Lyzozyme and Ulcerative Colitis," published in The Journal, Feb. 23, 1952, reviewed certain clinical and experimental evidence casting doubt on the etiological significance of lysozyme in this disease and suggesting the desirability of further research on this problem.

The writer of the editorial will be interested in the observations of Moeller, Marshall, and Kirsner (Lysozyme Production in Response to Injury of Gastrointestinal Tract in Dogs, *Proc. Soc. Exper. Biol. & Med.* **76**:159, 1951) indicating that lysozyme is produced in moderately large amounts by the gastrointestinal tract of dogs subjected to chronic stimulation with methacholine (mecholyl®). Cautery of the rectum in dogs resulted in the local production of large amounts of lysozyme within five to six hours after injury; the concentrations of lysozyme were higher than those usually encountered in patients with severe ulcerative colitis. The rapid production of lysozyme by an experimentally injured bowel suggests that it is an early accompaniment of the inflammatory reaction and that its presence is a reflection rather than a cause of ulcerative alimentary disease.

More recent studies (to be published in *Gastroenterology*) have demonstrated that the prolonged exposure of the colon of dogs to large concentrations of lysozyme did not alter the appearance of the bowel grossly or histologically. The foregoing observations would suggest that the role of lysozyme in ulcerative colitis is an interesting but relatively superficial facet of this difficult problem.

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## MEDICAL MOTION PICTURES

**The Muscular System:** 16 mm., black and white, sound, showing time 10 minutes. Produced in 1951 by and procurable on purchase from United World Films, Inc., 1445 Park Avenue, New York 29.

The action of muscles in maintaining body posture in standing and moving positions is demonstrated by a human model. As the model moves, animated diagrams and x-ray photography are superimposed. Arm movement is shown through action of biceps, triceps, and related muscles. The position, attachment, and function of muscles related to bones and joints are explained. Basically this film attempts to teach two principles of physiological interest. One is the presence of antagonistic groups among muscles; the other is the nature of the muscular activity concerned in breathing. The photography and narration are satisfactory, but the posture and gait are artificial and detract from the value of the film. The pace of the film is extremely slow. Therefore, it is of doubtful value at any level.

**The Human Skeleton:** 16 mm., black and white, sound, showing time 10 minutes. Produced in 1951 by and procurable on purchase from United World Films, Inc., 1445 Park Avenue, New York 29.

Skeletal functions in the support, protection, and movement of the body are shown. As a human model moves body parts, animated diagrams and x-ray photography are used to demonstrate main skeletal parts. Structure and various types of joints are illustrated. X-ray photography demonstrates elbow and wrist action. The film is scientifically accurate, although not a complete description of the human skeleton. It is elementary and slow moving. The producer can be commended for the clear way in which some exhibitions of the back are shown. The photography and narration are, in general, satisfactory and, in part, excellent. It would be suitable for use in junior and senior high school and in college health classes as an overview of this subject.

**List of Motion Pictures on Child Life**

The Children's Bureau of the Social Security Administration has prepared a comprehensive list of 400 films covering a wide range of subjects of interest to those concerned with the many aspects of child life. The films are listed according to subject matter under 19 headings, such as child care, diseases: prevention and treatment, handicapped children, maternity care, and recreation and play. Following the title of each film, the running time, date of production, type of film (sound or silent, color or black and white), and a description of contents are given. A directory of sources is included. This is not a list of recommended or approved films; therefore, there are no evaluations; however, it will be a useful reference tool to those who want to know what films are available on this subject. The compiler states that the Children's Bureau intends to supplement this list with a list of films that have been reviewed and evaluated by the staff of the bureau. Copies are available from the Federal Security Administration, Social Security Administration, Children's Bureau, Washington, D. C.

# MEDICAL LITERATURE ABSTRACTS

## UNITED STATES

### A.M.A. Arch. Surgery, Chicago

63:715-882 (Dec.) 1951

SYMPOSIUM ON PLASMA VOLUME EXPANDERS IN TREATMENT OF SHOCK:

Volemic Substances for Replacement of Blood. J. L. Bollman, R. C. Knutson and J. S. Lundy.—p. 718.

Tissue Changes Following Use of Plasma Substitutes. F. W. Hartman. —p. 728.

*Present Status of Plasma Volume Expanders in Treatment of Shock. W. L. Bloom.—p. 739.

Id.: Clinical Results in Surgery. W. McK. Craig, H. K. Gray and J. S. Lundy.—p. 742.

Subcostosternal (Morgagni) Diaphragmatic Hernia: Report of Case of Hernia Containing Stomach, Transverse Colon, and Omentum, with Review of Literature. H. C. Saltzstein, L. M. Linkner and S. R. Scheinberg.—p. 750.

Surgical Management of Massive Hemorrhage from Peptic Ulcer. F. Glenn and C. S. Harrison.—p. 766.

End-Results of Rehabilitation of War Wounds of Hand. D. R. Freni and R. Warren.—p. 774.

*Arnold-Chiari* Malformation. L. I. Malis, J. Cohen and S. W. Gross. —p. 783.

Anatomic Studies on Sympathetic Nervous System. R. M. Brooker. —p. 799.

*Production of Experimental Cretinism in Dogs by Administration of *Radioactive Iodine. C. A. Smith, H. A. Oberhelman Jr.*, E. H. Storer and others.—p. 807.

Direct Measurement of Intravascular Pressure in Components of Circle of Willis. B. M. Bloor, G. L. Odom and B. Woodhall.—p. 821.

Tocopherols in Treatment of Primary Fibrositis, Including Dupuytren's Contracture, *Periarthritis of Shoulders, and* Peyronie's Disease. C. LeR. Steinberg.—p. 824.

Use of Skeletal Traction for Mass Treatment of Compound Fractures: Summary of Experiences with 4,290 Cases During World War II. M. R. Urist and T. B. Quigley.—p. 834.

Experimental Osteogenesis in Rabbit Muscle. J. Hartley and S. S. Tanz. —p. 845.

Pilondal Cysts and Sinuses: Statistical Review. L. T. Palumbo, O. M. Larimore and I. A. Katz.—p. 852.

Modified Hoke Traction Apparatus. E. G. Edwards.—p. 858.

**Plasma Volume Expanders in Treatment of Shock.**—Bloom points out that most of the substances previously used for plasma volume expansion resulted in storage of the material in the body or in functional impairment of one or more organs. Although glycogen appeared capable of remaining in the blood stream, maintaining the vascular volume, and eventually being excreted or metabolized, the structural relationship of dextran to glycogen and the ease with which dextran could be produced turned attention to this substance. During the last two and one-half years the author watched for signs of functional impairment following the injection of partially hydrolyzed dextran and determined the degree and duration of plasma volume expansion and the fate of the injected material. Hematocrit, plasma protein, and dye techniques indicated a 10 to 15% increase in plasma volume after injection of 500 cc. of dextran and a 15 to 20% increase after injection of 1,000 cc. The mean plasma level of dextran is approximately 726 mg. per 100 cc. after the injection of 500 cc. of a 6% solution. The level slowly falls and 96 hours after injection is approximately 88 mg. Most of the urinary excretion of dextran occurs in the first 48 hours, during which 42% of the injected material is excreted. The fate of the remaining material is being studied. The 50 patients involved in these studies had various disorders, including infections, cardiovascular diseases, gastrointestinal disturbances, neurological disease, anxiety, neoplasia, and arthritis. No *untoward* reactions or functional impairment was observed. The value of dextran in expanding plasma volume was substantiated in 52 patients who were in shock as a result of blood loss and trauma. Forty-four of these responded to dextran administration, five patients had a temporary response, and three had no response.

**Cretinism Produced in Dogs by Radioactive Iodine.**—Smith and associates observed the complete destruction of the thyroid with *subsequent development* of cretinism in new-born puppies following the administration of radioactive iodine ($I^{131}$). The $I^{131}$ was given to pregnant bitches near term or to pups at varying intervals after delivery. The mother was permitted to nurse and care for the young, and an attempt was made to preserve 50% of the litter as a control. There were, of course, no controls for the pups that received $I^{131}$ in utero. From time to time the total serum lipid, protein, glucose, and calcium levels were determined. Thyroid function was estimated by determination of the *conversion ratio of free to protein* bound iodine. Cretinism in dogs is characterized by impairment of growth and skeletal development, obesity, lethargy, coarse, dry skin and hair, and, occasionaly, protuberant tongue. Cretin dogs have *hyperlipemia* and hypercholesteremia, and conversion of free to protein bound iodine is depressed. Associated endocrine changes are the immaturity of the gonads and increase in size of the pituitary.

### American Journal of Surgery, New York

82:671-788 (Dec.) 1951

Management of Diverticulitis Coli. H. L. Albright and F. C. Leonard. —p. 674.

Cardiac Arrest During Surgery. M. Corff.—p. 683.

Agenesis of Vermiform Appendix. D. C. Collins.—p. 689.

Effect of Variation in Length of Decompression Tube upon Bowel Wall: Clinical and Laboratory Study. M. O. Cantor, E. Acker, A. Scharf and K. Foster.—p. 697.

Acute Cholecystitis: Study of 140 Cases. H. R. Freund.—p. 703.

Rectal Sarcoma and Anorectal Malignant Melanoma. H. C. Bacon and M. C. Tavenner.—p. 709.

Rationale of Prostatectomy. M. B. Wesson.—p. 714.

Further Studies of Rate of Healing of Human Skin Measured by Electrical Wound Potential of Experimental Abrasions. T. C. Barnes, J. Karasic and M. D. Amoroso.—p. 720.

*Splenorenal Shunt for Portal Hypertension: Thoracico-Abdominal Approach. C. R. Lam.—p. 727.

**Splenorenal Shunt for Portal Hypertension.**—A rational and effective treatment of portal hypertension became available when Blakemore and Lord showed that functioning shunts could be made between this high pressure system and the low pressure vena cava. Ascites and dangerous bleeding from esophageal varices that may accompany hepatic cirrhosis are usually relieved when a satisfactory anastomosis is established. The two kinds of shunts originally suggested were the end-to-end splenorenal shunt *with* sacrifice of the left *kidney and the end-to-side* portacaval shunt. Lam points out that in many cases of portal hypertension it appears desirable to remove the large spleen, which automatically reduces the portal flow, and at the same *time to form a shunt with the stump* of the splenic vein. Even though the shunt will be smaller than the side-to-side portacaval shunt, with more danger of thrombosis, an operation can be done on the right side if the desired result is not obtained on the left. Lam describes, with illustrations, a technique of splenecto and splenorenal shunt designed to save the left kidney by util ing an end-to-side rather than an end-to-end anastomosis of splenic to the renal vein. This operation, as well as the por caval anastomosis on the right side, is facilitated by use o thoracicoabdominal approach. The value of the operation is lustrated by a case report in which splenectomy and splenore shunt were carried out in a patient with bleeding esophag varices from portal hypertension. Postoperatively the bleedi stopped and liver function improved.

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Titles marked with an asterisk (*) are abstracted.

## Am. Practitioner & Digest of Treatment, Philadelphia

### 2:1009-1096 (Dec.) 1951

Disturbances in Potassium Metabolism. T. S. Danowski.—p. 1009.
Relapsing Nodular Panniculitis (Weber-Christian Disease). L. C. Koch. —p. 1013.
Management of Chronic Ulcerative Colitis. E. D. Kiefer and E. J. Donovan.—p. 1019.
Lower Nephron Nephrosis. R. P. Lyon.—p. 1023.
Functional Disorders in Gynecologic Practice: Clinical Study of 303 Cases. B. V. MacFadyen.—p. 1028.
Treatment of Myocardial Infarction. J. J. Sampson.—p. 1031.
Management of Urinary Tract in Obstetrics. S. S. Baird.—p. 1038.
Clinical Evaluation of Benadryl in Parkinsonism. N. A. Bercel.—p. 1042.
Diet in Antepartum Care. A. P. Hudgins.—p. 1047.
Dietetic Aspects of Cardiovascular Diseases. A. M. Lefkovits.—p. 1052.
*Posterior Perforation of Interventricular Septum Following Myocardial Infarction: Report of One Case Treated with Intra-Arterial Transfusion. J. J. Gable Jr. and R. S. Bryan.—p. 1057.

**Perforation of Interventricular Septum Following Myocardial Infarction.**—In the patient described here, the perforation of the interventricular septum was diagnosed ante mortem. The symptoms were typical of acute myocardial infarction with signs of a defect of the interventricular septum. In these cases cyanosis is rarely seen, because there is no right to left shunt in acquired defects. A harsh, systolic murmur, usually with an accompanying thrill, appears suddenly in the fourth or fifth intercostal spaces to the left of the sternum following myocardial infarction. This is followed shortly by shock, and if the patient lives long enough, right axis deviation and eventually right heart failure develop. In the reported case an intra-arterial blood transfusion was given because it was feared that intravenous transfusion might cause further heart failure. The possibility of increasing the coronary circulation was an added incentive. Following the intra-arterial transfusion a palpable radial pulse returned, sweating ceased, and the extremities became warm. There was no cardiac embarrassment during or after the transfusion. However, after seven hours the patient again lapsed into shock and died three days later. Necropsy disclosed in the interventricular septum, near the base of the heart, an area of old hemorrhage and necrosis, 2.5 cm. in diameter. Lower in the septum was an area of marked pallor of the myocardium. A jagged 5 cm. defect was present in the interventricular septum posteriorly, with free communication between the chambers of the right and left ventricles. With intra-arterial transfusion, the delivery of blood into the aorta perfuses the coronary vessels, relieves myocardial ischemia, and places the heart rapidly in a state in which it can pump the infused blood to other areas; the arterial filling rapidly extends to vital medullary centers; and the blood pressure is rapidly restored.

## American Review of Tuberculosis, New York

### 65:1-110 (Jan. [Part I]) 1952

Tuberculous Mother: 5 to 20 Year Follow-up of 149 Women with 401 Full-Term Pregnancies. J. D. Cohen, E. A. Patton and T. L. Badger. —p. 1.
Tuberculosis in Anthracosilicosis. P. A. Theodos and B. Gordon.—p. 24.
Experimental Tuberculosis: III. Further Observations on Effects of Alteration of Pulmonary Arterial Circulation on Tuberculosis in Monkeys. B. J. Olson, H. W. Scott Jr., C. R. Hanlon and C. F. T. Mattern. —p. 48.
In Vivo Observations on Effect of Cortisone or Experimental Tuberculosis, Using Rabbit Ear Chamber Technique. R. H. Ebert.—p. 64.
Comparison of Growth and Autolysis of Two Strains of Tubercle Bacilli. A. Marshak and W. B. Schaefer.—p. 75.
Monaldi Procedure: Report of 30 Cases. W. O. Kelley and D. V. Pecora. —p. 83.
Linear Basal Atelectasis Following Therapeutic Phrenic Nerve Interruption. R. P. Jahn and J. K. Olinger.—p. 88.

### 65:1-50 (Jan. [Part II]) 1952

*Tuberculosis Among Diabetics; Philadelphia Survey. K. R. Boucot, D. A. Cooper, E. S. Dillon and others.—p. 1.

**Tuberculosis Among Diabetics.**—Photofluorograms revealed that 261 of 3,106 Philadelphia diabetics had tuberculosis, a prevalence of 8.4%. This was twice as high as the prevalence of tuberculosis in a group of apparently healthy industrial workers adjusted for age, race and sex. Of the 3,106 diabetic patients, 430 were less than 40, 2,653 were over 40, and the age of 23 was unknown. The prevalence of tuberculosis was 5.3% in diabetics less than 40 years old, compared with 1.7% for those over 40. Patients younger than 40 with diabetes of less than 10 years duration, had a tuberculosis prevalence of 5%, while it was 17% in those who had had diabetes for more than 10 years. The prevalence of tuberculosis was not related to duration of diabetes in persons over 40. The situation was similar when active tuberculosis only was considered. The prevalence of active tuberculosis increased from approximately 1.5% for those who received no insulin, or less than 40 units, to 5.3% for those who received more than 40 units each day. This is strong evidence in support of the thesis that diabetes predisposes to tuberculosis. As in nondiabetics, the prevalence of tuberculosis was twice as high among those below standard weight as among those above standard weight. This effect was independent of age, severity, and impression of activity. Since accepted diabetic treatment emphasizes the desirability of reducing the weight of diabetic patients to or slightly below average, it seems worth-while to emphasize the increased prevalence of tuberculosis in the diabetics below standard weight. Of the 261 tuberculous diabetics in this survey, 165 (63.2%) had minimal lesions. In the nondiabetic comparison group 74% of the lesions were minimal. Although the prevalence of minimal tuberculosis was not very different in these two groups, significantly more diabetics (31%) had active tuberculosis, regardless of the stage as contrasted with 11% in the comparison group. Not only is tuberculosis more frequent in diabetics but it is also likely to be more advanced.

## American Surgeon, Atlanta, Ga.

### 17:1101-1190 (Dec.) 1951

Volvulus of Sigmoid Colon, with Report of Four Cases. O. W. Clayton, S. J. Campbell and R. F. Guthrie.—p. 1101.
Low Back Problem. P. W. Shannon and S. R. Terhune.—p. 1106.
Prostatectomy by the General Surgeon: Report of 86 Cases of Retropubic Prostatectomy. R. D. Kirk and L. C. Feemster.—p. 1113.
*Irradiation Dermatitis of Hands. M. L. Mason.—p. 1121.
Chronic Hyperthyroidism. T. C. Davison.—p. 1132.
Skin Grafting in Treatment of Extensive Pilonidal Disease and Anal Fistula. A. C. Williams.—p. 1137.
Small Intestinal Obstruction Due to Endometriosis. C. E. Clark.—p. 1145.
Recent Studies on Obesity. A. T. Miller Jr.—p. 1155.
Abdominal Tumors—Urologic Perspective. M. M. Coplan, F. M. Woods and P. D. Melvin.—p. 1160.
Clinical Behavior of Jejunal Diverticula. C. D. Hershey and G. B. Carver. —p. 1168.

**Irradiation Dermatitis of Hands.**—According to Mason, irradiation injuries are a considerable proportion of the conditions for which plastic surgery is required. The hands are involved in from 30 to 60% of the cases of irradiation dermatitis. A large proportion of the patients are doctors, dentists, and radiation technicians. They usually have been treated for some chronic, usually recurring, skin disorder such as eczema, ringworm, psoriasis, or occupational dermatitis, or some indefinite undiagnosed dermatosis. Possibly if these patients remained under the care of the same dermatologist, no harm would follow. However, the very nature of their condition involves recurrences and another physician may be consulted who has no knowledge of the previous therapy or, if he knows of it, has no knowledge of the dosage given. This is especially serious in the case of the hand, the skin of which is not only highly sensitive to x-rays and radium, but is also exposed to irradiation from heat and sunlight. When irradiation has been employed to destroy a malignant tumor, the tumor may be replaced by a dermatitis, which itself may be malignant. In other instances nonmalignant tumor masses, such as warts, moles, nevi or angiomas have been treated by irradiation. Injuries also have been known to result from x-ray treatment of infection and during search for foreign bodies or reduction of fractures. In young children in whom an epiphysis has been exposed to rays, deformity has been known to result. Frequently repeated irradiations, with small exposures over a prolonged period, are more likely to lead to carcinoma than more intensive exposure. The treatment of chronic irradiation dermatitis on the hand, as on other parts of the body, is excision of the damaged skin. The occurrence of malignant growth alters somewhat the nature of the surgery, although unless there has been great delay in treatment, amputations may be kept at a minimum. Since treatment is difficult and often unsatisfactory, prevention is important. The use of x-rays in chronic recurring types of skin disease is illogical, since few of these diseases are cured by the irradiation, while tumors and infections of the hands are better treated by means other than irradiation.

"Thevetoidin" is approximately 1/20 as potent as ouabain. Its complete effect is exerted within about 10 minutes after its administration and disappears in approximately one hour. Its vagal action is more rapid and intense than that of any cardiac glycosides studied up to the present time. The clinical dose was deduced by comparing the effects of "thevetoidin" with those of ouabain on the failing heart-lung preparation. It was impossible to decide on a dose by comparison of toxicity in frogs or in cats, since the toxicity was about 200 times less than that of ouabain in the frog and about 25 times less in the cat. In view of the results obtained, it was decided to begin a clinical investigation with doses of 5 to 10 mg. The dose of 10 mg. was found to be correct, as may be seen in a clinical study of "thevetoidin" by Chavez and associates that demonstrated its possible use in certain cardiac disorders. It is emphasized that the heart-lung preparation can be used for the study of the therapeutic activity of digitalis-like substances with rapid action.

## Diseases of Chest, Chicago

**21**:1-122 (Jan.) 1952

*Combined Intermittent Regimens in Treatment of Non-Miliary Pulmonary Tuberculosis: Comparison of Streptomycin Every Third Day and Para Aminosalicylic Acid Daily With Streptomycin Every Third Day and Para Aminosalicylic Acid Every Third Day. F. J. Hughes, R. E. Mardis, W. E. Dye and C. W. Tempel.—p. 1.
Empyema Complicating Closed Intrapleural Pneumonolysis and Artificial Pneumothorax. D. Salkin and I. T. Gadzikowski.—p. 17.
Place of Pulmonary Resection in Treatment of Tuberculosis. R. H. Overholt, N. J. Wilson and L. J. Gehrig.—p. 32.
Inhalation Cortisone Therapy in Bronchial Asthma. A. A. Doerner, C. F. Naegele, F. D. Regan and W. Weingarten.—p. 51.
*Primary Atypical Pneumonia: Analysis of 123 Cases; Report of One Fatality; Review of 14 Cases Treated with Aureomycin. S. Finkel and B. H. Sullivan Jr.—p. 55.
Primary Anterolateral Thoracoplasty: Preliminary Report. J. F. Pou.—p. 70.
Surgical Pathology of Pulmonary Tuberculosis: Mechanism of Cavity Healing as Seen with Streptomycin Therapy. G. Silverman, R. Klopstock and G. Gibbons.—p. 86.
Chest Surveys of Aged. E. G. Beacham and S. H. Macht.—p. 102.
Arteriovenous Fistula of Lung and Associated Hemangioma of Vertebra: Case Report. J. W. Nixon and J. F. Perry.—p. 108.

**Combined Intermittent Treatment Schedules in Pulmonary Tuberculosis.**—Two groups of patients with moderate or far advanced nonmiliary pulmonary tuberculosis were studied. The 95 patients in one group were treated with 1 or 2 gm. of streptomycin intramuscularly every third day and 12 gm. of *p*-aminosalicylic acid daily by mouth for 120 days, while the 103 patients in the other group were given streptomycin every third day and *p*-aminosalicylic acid every third day for 120 days. Six-months follow-up study was completed on 81 patients of the first group and 54 of the second. Both groups were compared in regard to age, sex, race, extent of disease, pathological type, roentgenographic findings, and clinical status at the start of therapy. Results of treatment showed that clinical response was approximately equivalent for the two combined intermittent treatment schedules after 120 days of drug treatment. Further improvement occurred during the follow-up period in both groups, but was slightly greater in those treated with streptomycin every third day and *p*-aminosalicylic acid daily. Pronounced improvement was shown on roentgenograms during 120 days of treatment and six months after treatment with both treatment schedules. The condition did not become worse during the 120 days of treatment. Only 20.5% and 26.2%, respectively, of patients with cavities obtained apparent closure of cavities during treatment, but 60 and 66.7% obtained closure of cavities during the six months follow-up period, largely due to additional operative procedures. On the two treatment schedules 66.3% and 69.9% of the patients had negative sputum after 120 days of treatment. The proportion remained approximately the same at the six month evaluation. None of the patients treated with streptomycin every third day and *p*-aminosalicylic acid daily for 120 days yielded tubercle bacilli resistant to either drug. Of the 31 patients treated with both drugs every third day from whom positive cultures were obtained after 120 days of treatment, 9 (29%), or 8.7% of the total of 103 patients, yielded organisms resistant to streptomycin. Bacterial resistance did not appear in these nine patients until they had received an average of 106 days of drug therapy. Combined intermittent therapy employing streptomycin every third day and *p*-aminosalicylic acid daily is the treatment schedule of choice when drug therapy is indicated for nonmiliary pulmonary tuberculosis for periods up to four months. The second form of combined intermittent therapy employing both drugs every third day has the disadvantage that bacterial resistance to streptomycin is observed in a small percentage of cases, but patients may be benefited by it who are unable to take *p*-aminosalicylic acid for long periods. This method gives better results than use of either streptomycin or *p*-aminosalicylic acid alone for 120 days.

**Primary Atypical Pneumonia.**—Primary atypical pneumonia in 123 patients between 17 and 27 who were admitted to an Army general hospital is reported. This disease is seen in the Army usually during the first few months of a recruit's service. The clinical picture starts with cough, and later the patients may have fever, chills, headache, anorexia, chest pain, and occasionally hemoptysis. Commoner in the authors' patients than in others was some change in the character of the breath sounds, which became impaired, harsh or increased in intensity with no one specific character predominating. Elevated temperature of from 101 to 103 F occurred in almost all cases. The commonest experience was a rise of one to two degrees following admission and then a fall to normal by lysis. Many patients may not be acutely ill, although roentgenographic findings may be pronounced, usually clearing in three to four weeks. Mortality due to primary atypical pneumonia is low; of the 123 patients 1 obese patient died. Necropsy revealed hypoplastic aorta, hypoplasia of the lymphoid elements of the spleen, hypoplasia of the chromaffin tissue of one adrenal, and pulmonary findings compatible with primary atypical pneumonia. Of the 123 patients, .87 (71%) were treated with 50,000 units of penicillin every three hours during the entire febrile stage. Temperature returned to normal in 5 to 10 days. Fourteen more seriously ill patients were treated with aureomycin. The average daily dose of the drug was 1.6 gm. in divided doses. Temperature returned to normal in 18 to 60 hours, accompanied by pronounced symptomatic improvement. Clearing of the roentgenographic findings was accelerated and hospitalization was shortened. Of the 14 patients treated with aureomycin, 2 had relapses 10 days and 2 weeks, respectively, following discontinuation of treatment with aureomycin; both patients recovered on symptomatic treatment. Cold agglutinin titers were determined in 8 of the 14 patients, and in 5 the titers were 1:40 o higher.

## Georgia Medical Association Journal, Atlanta

**40**:501-560 (Dec.) 1951

Contributions of Present Day Psychiatry to Role of the Medical Practitioner. R. Chalmers.—p. 505.
Treatment of Rheumatic Fever and Its Complications. J. A. Redfean—p. 509.

## Hawaii Medical Journal, Honolulu

**11**:65-128 (Nov.-Dec.) 1951

Accidental Poisoning in Children with Spectial Reference to Kerose Poisoning. L. T. Chun.—p. 83.
Some Common Arrhythmias and Their Treatment with Lanatoside (Cedilanid). F. B. Schultz.—p. 88.
Epidemic of Conjunctivitis in Hawaii. W. J. Holmes.—p. 94.

## Illinois Medical Journal, Chicago

**101**:1-84 (Jan.) 1952

Diagnosis of Congenital Cardiovascular Anomalies Non-Cyanotic Grou S. Gibson.—p. 15.
Surgical Aspects of Non-Cyanotic Congenital Heart Disease. W. J. Pot —p. 18.
The Celiac Syndrome. J. A. Bigler.—p. 21.
Common Complaints in Gynecology and Obstetrics. W. C. Scrivne —p. 28.
Roentgenology in Obstetrical Problems. F. Blonek.—p. 30.
Voluntary Health Insurance—Success or Failure? H. K. Scatliff.—p. 3
Geriatric Dermatoses: Survey of Skin of the Aged. S. J. Zakon, A. Goldberg and I. Forman.—p. 37.
New Tongue-Holding Airway. L. Lieberman and L. Holzman.—p. 39.
Vaginal Bleeding Secondary to Renal Malignancy. W. C. Meyer a R. H. Conley.—p. 41.
Phlegmasia Cerulea Dolans. S. W. Raymond.—p. 46.
Severe Reaction to Indigo-Carmine. G. S. Schwerin.—p. 48.

## Indiana State Medical Assn. Journal, Indianapolis

44:1145-1256 (Dec.) 1951

Retrolental Fibroplasia and Anoxia. C. J. Rudolph and E. M. Sirlin. —p. 1161.
*Acute Cyanide Poisoning: Recovery with Sodium Thiosulfate Therapy. M. H. Miller and T. C. Toops.—p. 1164.
Survey of Hysterectomies. F. C. Donaldson and F. W. Peyton.—p. 1165.
Observations on Uses and Dangers of Cation Exchange Resins. M. M. Best.—p. 1168.
Modern Developments in Surgical Treatment of Peptic Ulcer. U. G. Dailey.—p. 1170.

**Recovery in Acute Cyanide Poisoning.**—It is not often that a patient who has ingested cyanide is seen early enough to be aided, but on occasion prompt administration of the specific antidote has resulted in recovery. Miller and Toops report a case of attempted suicide in which more than 6 gm. of potassium cyanide was taken. This amount is approximately 25 times the average adult fatal dose. Within three minutes the patient was unconscious and in convulsion; within 10 minutes no pulse or blood pressure was obtainable and the patient was cyanotic. The treatment, instituted after 10 minutes, consisted of four ampules of amyl nitrite by inspiration, immediate gastric lavage, 50 ml. of sodium thiosulfate given intravenously (with 50 ml. more given 20 minutes later), and supportive care in the form of oxygen and nikethamide. The patient made a rapid recovery.

## J. American Med. Women's Assn., Nashville, Tenn.

6:453-502 (Dec.) 1951

ACTH and Cortisone in Ocular Disease. G. R. Nachod.—p. 453.
Cancer Problem: Correlation of Investigational Data. M. E. Sano.—p. 456.
*Dysfunctional Uterine Bleeding. S. E. Sykes.—p. 460.
Recent Advances in Dermatology. C. C. Thomas.—p. 464.
Cystic Fibrosis of Pancreas: Case Report. B. Brooks.—p. 468.
Moniliasis: Side Effect of Antibiotic Therapy. E. D. Kyhos.—p. 470.

**Dysfunctional Uterine Bleeding.** — The term dysfunctional uterine bleeding is chiefly applied to endocrinopathic bleeding rather than to bleeding that results from tumor or inflammation. This type of bleeding is seen chiefly at the extremes of the menstrual life. The author analyzes the cases of dysfunctional uterine bleeding from the ward service of Woman's Medical College Hospital in the 10 year period 1940-1950. There were 100 patients with the diagnosis of dysfunctional bleeding discharged one or more times from the service, and 45 of these were included in this study. Treatment of dysfunctional uterine bleeding is based on the age of the patient and the type of pathological change encountered in the endometrium. In this series the persistent estrin phase endometrium was the most common cause of dysfunctional uterine bleeding in all age groups. Irregular maturation rather than hyperplasia is the second most common cause of dysfunctional uterine bleeding in adults. The modern therapy for dysfunctional uterine bleeding consists of hormone therapy during puberty, curettage plus hormone therapy in the childbearing age, and repeated curettage or hysterectomy during the menopausal age.

## Journal of Applied Physiology, Washington, D. C.

4:403-496 (Dec.) 1951. **Partial Index**

Air-Flow Patterns and Pulmonary Ventilation During Manual Artificial Respiration on Apneic Normal Adults. II. A. S. Gordon, J. E. Affeldt, M. Sadove and others.—p. 408.
Energy Expenditure of Operations During Manual Artificial Respiration. IV. A. S. Gordon, F. Raymon, M. S. Sadove and H. Wedell.—p. 439.
Pulmonary Ventilation in Manual Artificial Respiration. P. V. Karpovich, C. J. Hale and T. L. Bailey.—p. 458.
Mechanics of Breathing in Relation to Manual Methods of Artificial Respiration. J. L. Whittenberger, J. E. Affeldt, W. T. Goodale and S. J. Sarnoff.—p. 476.
*Comparison of Methods for Performing Manual Artificial Respiration on Apneic Patients. R. G. Nims, E. H. Conner, S. Y. Botelho and J. H. Comroe Jr.—p. 486.

**Manual Artificial Respiration for Apneic Patients.**—In many instances in which artificial respiration is required, manual methods are either the only methods available or the only techniques that may be applied immediately. Manual methods are those that can be carried out without the assistance of additional material or equipment. For example, the Eve (gravity, tilting) method is not a manual method when a stretcher, door, or shutter and fulcrum are required, but is a manual method if the patient is light enough to be tilted back and forth in the operator's arms. The manual method for artificial respiration most widely employed in this country is the Schafer prone-pressure technique, but this method has deficiencies. There has been renewed interest in the Silvester and the Nielsen or arm-lift and back-pressure methods, and in the newer hip-lift and hip-roll techniques. Their own experience has convinced Nims and co-workers that the hip-lift back-pressure method is the most effective and should be used whenever the operator is strong and the patient is light, or when artificial respiration is needed for only a few minutes. The Nielsen method, though less effective than the hip-raising procedures, was superior to the Schafer method. It probably represents the most practical method for producing adequate pulmonary ventilation in individuals in need of artificial respiration for long periods. It should be used with a full arm lift at a rate of 15 per minute or more. No one method of manual artificial respiration is ideal for all situations. Both the hip-lifting techniques and Nielsen procedures should be learned by persons who often encounter apneic patients.

## Journal Clin. Endocrinology, Springfield, Ill.

11:1411-1642 (Dec.) 1951

Seminal Fructose Concentration as Index of Androgenic Activity in Man. R. L. Landau and R. Loughead.—p. 1411.
Beta-Glucuronidase Studies in Women: V. Menstrual Cycle and Serum Beta-Glucuronidase Activity in Estrogen-Treated Postmenopausal Subjects. W. H. Fishman, S. C. Kasdon, C. D. Bonner and others. —p. 1425.
Occurrence and Significance of Leydig Cell Proliferation in Familial Adrenal Cortical Hyperplasia. B. H. Landing and E. Gold.—p. 1436.
Failure of Water Diuresis in Addison Disease. J. Reforzo-Membrives and O. M. Repetto.—p. 1454.
*Changes in Circulating Leucocytes Following Electrically Induced Convulsions in Man. B. F. Graham and R. A. Cleghorn.—p. 1469.
Growth and Histologic Changes of Human Thyroidal Tumors Transplanted into Anterior Chamber of Eyes of Guinea Pigs. B. M. Dobyns and B. Lennon.—p. 1481.
*Use of Thyrotropic Hormone (TSH) in Diagnosis of Myxedema. W. H. Perloff, L. M. Levy and A. Despopoulos.—p. 1495.
Radioiodine Tracer Studies in Thiocyanate Myxedema. C. M. Blackburn, F. R. Keating Jr. and S. F. Haines.—p. 1503.
Changes in Blood Iodine Fractions and Radioactivity Under Therapy. W. T. Salter, M. de Visscher, G. B. McAdams and I. Rosenblum. —p. 1512.
Evaluation of Conversion of Radioactive Inorganic Iodine to Protein-Bound Iodine as Diagnostic Aid in Thyroid Dysfunction. W. N. Harsha. —p. 1524.
Hürthle Cell Tumors of Thyroid Gland: Report on 25 Cases. V. E. Chesky, W. C. Dreese and C. A. Hellwig.—p. 1535.
Somnolent Metabolic Rate (SMR) as Aid in Differential Diagnosis of Thyroid Dysfunction. R. L. Rapport, G. M. Curtis and S. J. Simcox. —p. 1549.
Chronic Thyrotoxic Myopathy: Report of Case. E. L. Quinn and R. L. Worcester.—p. 1564.

**Leukocytes and Electroconvulsive Therapy.**—The neutrophils, lymphocytes, and eosinophils were counted before, and at one, two, four and six hours after 57 electroconvulsive treatments in 15 patients. There was an increase in neutrophils and a decrease in lymphocytes and eosinophils similar to those noted following injections of corticotropin (ACTH). Studies on nine patients during 19 electroconvulsive treatments not preceded by intravenous injections of sodium amytal revealed that the aforementioned changes were greater when sodium amytal was not used. The question is raised as to the extent to which activation of the adrenal cortex is due to the excessive muscular activity and hypoxemia accompanying the convulsion, or, more directly, to the electrical stimulation of the head. Studies by other workers indicate that leukocytosis and lymphocytosis occur within a few minutes of the convulsion; and patients with "petit mal" responses are reported to exhibit the later lymphocytopenia without the earlier leukocytosis and lymphocytosis. These observations suggest the greater importance of the electrical stimulation in activation of the adrenal cortex.

**Thyrotropic Hormone in Diagnosis of Myxedema.**—Until recently the diagnosis of pituitary myxedema has depended on the association of hypothyroidism with adrenocortical insufficiency and very low or absent urinary follicle-s [illegible] g hormone (FSH) levels. However, the observati [illegible] rimary thyroid myxedema may be acco [illegible] d by e [illegible] adrenocortical insufficiency and low or absent urinary follicle-stimulating hormone made the validity of this concept doubtful. With pure thyroid-stimulating hormone, the ability of thyroid tissue to respond to pituitary stimulation may be tested specifically. This test is based on two premises: first, that primary myxedema is due to failure of the thyroid gland, which cannot be stimulated to function normally; second, that pituitary myxedema is due to failure of the pituitary gland to stimulate the thyroid gland, which is, however, potentially capable of being stimulated. Perloff and associates describe their experience with the thyroid-stimulating hormone in a series of patients with myxedema. They found that patients with pituitary myxedema had a more nearly normal level of thyroid function than those with thyroid myxedema, as evidenced by the higher radioactive iodine ($I^{131}$) uptakes and basal metabolic rate and the lower serum cholesterol values. Administration of thyrotropic hormone in conjunction with a 24-hour radioiodine tracer test proved an accurate method of distinguishing pituitary myxedema from primary thyroid myxedema. Euthyroid individuals showed a mean increase of 20.8% over baseline values. Primary hypothyroid patients maintained a radioiodine accumulation (7.6%) similar to their low control values (6.1%). Pituitary hypothyroid patients showed a mean increase of 32.2%, their mean poststimulation value (45.4%) being almost identical with that of the euthyroid group (44.4%). The thyroid-stimulating hormone test was reproducible in two patients with pituitary myxedema; 1 gr. (60 mg.) of desiccated thyroid daily did not alter the results.

## Journal of Experimental Medicine, New York

94:455-574 (Dec.) 1951

Studies on Entry and Egress of Poliomyelitic Infection: IV. Atraumatic Oral Entry: Distribution of Lesions and Virus During Incubation Period: With Notes on Asymptomatic Poliomyelitis. H. K. Faber, R. J. Silverberg and L. Dong.—p. 455.
*Epidemic of Paralytic Poliomyelitis Characterized by Dual Infections with Poliomyelitis and Coxsackie Viruses. J. L. Melnick, A. S. Kaplan, E. Zabin and others.—p. 471.
*Occurrence of Leucocyte-Platelet Thrombosis in Rheumatic Carditis. C. A. Stetson Jr.—p. 493.
Influence of Cortisone on Primate Malaria. L. H. Schmidt and W. L. Squires.—p. 501.
Studies on Cellular Immunology of Acute Bacteriemia: I. Intravascular Leucocytic Reaction and Surface Phagocytosis. W. B. Wood Jr., M. R. Smith, W. D. Perry, and J. W. Berry.—p. 521.
Intracellular Localization of Acid Phosphatase: Comparative Study of Biochemical and Histochemical Methods. G. E. Palade.—p. 535.
The in Vitro Preparation and Histochemical Properties of Substances Resembling Ceroid. W. G. B. Casselman.—p. 549.

**Poliomyelitis and Coxsackie Viruses in Paralytic Poliomyelitis.**—Coxsackie viruses have been isolated in poliomyelitis, aseptic meningitis, epidemic myalgia or pleurodynia (Bornholm disease), and herpangina. This paper is concerned with an epidemic of poliomyelitis characterized by a high ratio of paralytic to nonparalytic cases, by a high proportion of fatal cases, and by the isolation of both poliomyelitic and Coxsackie viruses from more than half of the patients studied during the acute stage of the disease. Classification of the 28 strains of Coxsackie virus revealed that 24 belonged to one antigenic type, Easton-2 (related to Albany type 1 virus). Patients from whom Coxsackie virus was isolated showed a rise to the Easton-2 or homologous type antibody. Two patients with paralytic poliomyelitis were studied for the quantitative development of antibodies to the poliomyelitis virus and to the Coxsackie virus found in their stools. Using the neutralization test in monkeys and in newborn mice, a simultaneous rise in antibodies to both agents was observed. Poliomyelitis virus or Coxsackie virus may produce infection in man, with a specific antibody response. Furthermore both agents may be carried in the intestines, without causing any serious illness, and both can be found in flies and in sewage. There has been no evidence that these two viruses are related. When both viruses are found in a patient, it is not possible to say to what extent each is responsible for the disease.

**Leukocyte-Thrombocyte Thrombosis in Rheumatic Carditis.**—In previous studies on the mechanism of tissue damage by bacterial endotoxins and by antigen-antibody interactions in vivo, the author found that the characteristic hemorrhagic and necrotic cutaneous lesions that occur during the Arthus and Shwartzman phenomena are the result of thrombosis or occlusion of capillaries and small veins with masses of leukocytes and thrombocytes. It was thought that a similar mechanism might operate in the pathogenesis of certain human diseases. Consequently diseased tissue from 46 patients who died during the course of rheumatic fever or other acute and chronic diseases was examined for the presence of leukocyte-thrombocyte thrombi and cardiac tissues were examined microscopically for evidence of rheumatic carditis, the presence or absence of the typical Aschoff body being the sole diagnostic criterion. The results indicate that leukocyte-thrombocyte thrombosis of capillaries and small veins is a prominent feature of active rheumatic carditis. These vascular lesions and Aschoff bodies were consistently found in the hearts of patients dying during the course of rheumatic fever. It is suggested that the cellular thrombi may play a role in the pathogenesis of rheumatic carditis.

## Journal of Investigative Dermatology, Baltimore

17:303-368 (Dec.) 1951

*Treatment of Lupus Erythematosus with Vitamin $B_{12}$: Preliminary Report of 4 Cases. S. Goldblatt.—p. 303.
Amino Acid Requirements of Microsporum Fulvum. S. A. M. Johnso and N. Y. Grimm.—p. 305.
Studies on Thorium X Applied to Human Skin: I. Routes and Degree o Penetration and Sites of Deposition of Thorium X Applied in Selecte Vehicles. V. H. Witten, M. S. Ross, E. Oshry and A. B. Hyma —p. 311.
Studies of Dermatophytes in Culture Media Containing 2,3,5-Tripheny tetrazolium Chloride. O. Canizares and H. Shatin.—p. 323.
Leprosy and Sarcoid: Kveim Test in Leprosy Patients and Contact H. W. Wade.—p. 337.
Cutaneous Lesions of Allergic Granulomatosis: Histopathologic Stud L. Strauss, J. Churg and F. G. Zak.—p. 349.

**Vitamin $B_{12}$ in Lupus Erythematosus.**—The changes that oc curred in three men with chronic, discoid lesions and one woma with severe, disseminated, subacute lupus erythematosus fo lowing administration of vitamin $B_{12}$, were of such a nature an occurred rapidly enough to suggest that this agent might b effective in this disease. The vitamin $B_{12}$ was injected intra muscularly in doses of 15 μg. once a week for a total of eigh injections in the first patient and three times a week in th woman with the subacute form. It seems that larger doses c vitamin $B_{12}$ than were used in these patients would probabl be even more effective in combating the various manifestation of lupus erythematosus. The painlessness of the intramuscula injections, comparatively low cost, and lack of toxicity will favo the use of vitamin $B_{12}$. However, further investigation and ob servation will be required before any conclusion as to its actua effectiveness may be drawn.

## Journal of Nervous and Mental Disease, New York

114:377-470 (Nov.) 1951

Nonconvulsive Electrostimulation and Pituitary-Adrenocortical Syste R. H. Taylor, M. Gross and I. J. Ruby.—p. 377.
Homeostatic Studies in Patients with So-Called Psychosomatic Diseas (Peptic Ulcer). C. Rupp, H. E. Riggs, R. S. Boles and P. S. Shor —p. 384.
Carbonic Anhydrase as Factor in Organization of Central Nervo System. W. Ashby.—p. 391.
Relationship Between Psychoses and Visceral Crises. C. W. Olse —p. 396.
*Changes in Nervous Tissues and Study of Living Organisms in Ment Disease. J. W. Papez and J. F. Bateman.—p. 400.
Performance of Complex Visual Tasks After Cerebral Lesions. H.- Teuber, W. S. Battersby and M. B. Bender.—p. 413.
Pulsatile Activity of Cells from Human Brain in Tissue Culture. C. Pomerat.—p. 430.
Thought Process as Related to Brain Metabolism in Certain Abnorm Conditions. H. E. Himwich.—p. 450.
Cortical Components of Akinetic Mutism. J. M. Nielsen.—p. 459.

**Changes in Nervous Tissues in Mental Disease.**—Papez an Bateman studied more than 70 biopsies taken from the pr frontal cortex of patients with dementia praecox (schizophrenia They found that abnormal changes in cytochemical process in nerve cells occur in dementia praecox. The metabolic di turbances caused by inclusion bodies are exhibited prominent by the nucleus and cytoplasm. An early stage involves the pre ence of inclusion bodies in the cytoplasm, with increase desoxyribonucleic acids in the nucleus. This continues into stage in which the nucleus becomes inflated with a great quanti of nuclear sap. The cytoplasm is stretched, and impoverishe in Nissl substance. Naked nuclei occur in profusion when the cytoplasm breaks away from the nucleus. These are the outstanding changes in dementia praecox. Pyknosis is another change affecting fewer cells, usually those closer to the surface of the cortex. The linin reticulum of the nucleus develops into a dense network (possibly histone) gradually excluding the nuclear sap, until the nucleus becomes homogenous and shrunken. The cytoplasm shrinks and loses its capacity for repair, but retains its cytochrome and probably its respiratory capacity. Collagen-like changes in some cases affect the pyknotic nuclei. This substance oozes out into the cytoplasm as droplets. The glia and vascular tissues also show an increase of collagen. The neurofibrils in the nerve cells are congealed or destroyed in the region of the cytoplasm occupied by inclusion bodies. The axons of the radial bundles show distortions of caliber. Gliosis, another feature of abnormal metabolism, is shown by growth of sclerosing fibers around astroglia cells in the cortex, and by proliferation of oligoglia nuclei and sclerosing fibers in the white matter. Proliferation of mesoglia and microglia nuclei around blood vessels is a common feature. The presence of a pleomorphic organism is common to all these changes, as demonstrated by the use of dark phase microscope.

## Journal of Nutrition, Philadelphia

45:463-632 (Dec.) 1951. **Partial Index**

Nitrogen Retained by Six Adolescent Girls from Two Levels of Intake. F. A. Johnston and D. Schlaphoff.—p. 463.
Magnesium Metabolism in College Women: Observations on Effect of Calcium and Phosphorus Intake Levels. J. M. Leichsenring, L. M. Norris and S. A. Lamison.—p. 477.
Vitamin $B_{12}$ and Production of Polycythemia by Cobalt. S. Levey and J. M. Orten.—p. 487.
Deposition of B Vitamins in Normally Developing Fetuses as Evidence for Increased Vitamin Needs of Rat for Reproduction: I. Thiamine and Riboflavin. M. Barrett and G. Everson.—p. 493.
Further Studies on Absorption of Vitamin $B_{12}$ Following Oral and Parenteral Administration. R. Yamamoto, C. Barrows Jr., C. Lang and B. F. Chow.—p. 507.
Effect of Fat Level of Diet on General Nutrition. S. M. Greenberg, C. E. Calbert, H. J. Deuel Jr. and J. B. Brown.—p. 521.
Effect of Vitamin $B_{12}$ on Reproduction and Lactation in Rats Receiving Pork or Beef Diets. M. L. Meyer, H. T. Thompson and C. A. Elvehjem.—p. 551.
Effect of Heat Treatment on Nutritive Value of Milk Proteins: IV. Biological Value of Unheated and Autoclaved Dried Skim Milk. R. A. Kraft and A. F. Morgan.—p. 567.
Forification of Bread with Lysine: I. Loss of Lysine During Baking. H. R. Rosenberg and E. L. Rohdenburg.—p. 593.
Minimum Protein Requirement of Adult Rat for 28-Day Periods of Maintenance of Body Weight. M. Goettsch.—p. 609.

## Journal of Pediatrics, St. Louis

39:645-804 (Dec.) 1951

Direct Surgical Attack on Pulmonary Stenosis in Tetralogy of Fallot. D. F. Downing, C. C. Fischer, C. P. Bailey and others.—p. 645.
*Mononuclear Pneumonia in Sudden Death or Rapidly Fatal Illness in Infants. P. Gruenwald and M. Jacobi.—p. 650.
Orthopedic Care in Anterior Poliomyelitis. LeR. C. Abbott.—p. 663.
*Effect of Inherited Antibodies on Active Immunization of Infants: Part II. Duration of Immunity. L. Greenberg and D. S. Fleming.—p. 672.
Calcium and Phosphorus Studies in Negro Premature Infants. M. Gleich, S. Smoller and B. E. Scott.—p. 677.
Erythroblastosis Fetalis in Negro Infant: Report of Five Cases, Including Four Cases Due to A-B-O Incompatibilities. R. B. Scott, M. E. Jenkins and A. D. Kessler.—p. 680.
Chloramphenicol and Terramycin in Treatment of Salmonella and Shigella Infections. R. H. Kunstadter, A. Milzer and B. M. Kagan.—p. 687.
Cardiac Enlargement of Unknown Etiology in Infancy and Childhood. K. C. Lewis.—p. 698.
Acute Appendicitis in Children: Five-Year Analysis of Cases at Childrens Hospital, Denver. G. B. Packard and C. H. McLauthlin.—p. 708.
Two Atypical Cases of Chondrodysplasia. J. W. C. de Groot.—p. 715.
Gastric Diverticula in Infancy. G. L. Ogur and A. J. Kolarsick.—p. 723.
Bacteriostatic, Germicidal, and Sanitizing Action of Quaternary Ammonium Compounds on Textiles: Prevention of Ammonia Formation from Urea by Proteus Mirabilis. M. A. Latlief, M. T. Goldsmith, J. L. Friedl and L. S. Stuart.—p. 730.

**Mononuclear Pneumonia.**—In 76 infants over 9 days old who died at home or in a hospital suddenly or after brief prodromal symptoms, or shortly after admission to a hospital with acute, severe symptoms, a diffuse mononuclear pneumonia was frequently observed at necropsy. On microscopic examination the diseased lung tissue was sharply demarcated from the normal portions and within it areas of different degrees of expansion and aeration were also often well demarcated. All these areas had in common a pronounced thickening of the alveolar walls and exudate in the lumens. The commonest form was that in which a few alveoli were aerated, and the majority expanded with fluid containing large mononuclear cells. Intra-alveolar and interstitial emphysema occurred in the diseased portions of the lungs as well as in uninvolved areas. These findings were associated with less characteristic ones in other organs. Hyperplasia of lymphoid tissue occurred most commonly in the intestinal wall, in the mesenteric lymph nodes, and in the spleen, while the mediastinal lymph nodes were frequently not enlarged. The difficulties of judging the normal appearance of lymphoid tissue in infants have been stressed. Clinical and pathological observations suggested infection as the cause of the changes, but bacteria were not regularly found. This, together with the pulmonary changes and other considerations suggested a viral etiology, but no proof of this was available. Pulmonary changes resembling those described by the authors occur in infants with a more protracted disease, or with other lesions that may have contributed to the fatal outcome. Whatever the cause of mononuclear pneumonia, it is probably not fatal in many instances. The occurrence of the pathological changes described in the authors' cases of sudden death should be known in order that erroneous diagnoses of accidental asphyxia or status thymicolymphaticus may be avoided, and also as a basis for future search for the cause of the disease.

**Inherited Antibodies and Immunization.**—Results of a previous study on the effect of inherited antibodies on the active immunization of 105 infants who had been immunized against diphtheria, tetanus, and whooping cough at the age of three and four months demonstrated that it is both practical and desirable that infants should be immunized at this age and with combined antigens. The present report of titrations of blood samples from 27 of the infants with no inherited diphtheria antitoxin and 13 with inherited antibodies one year after the immunization indicates that, when a potent antigen is used, inherited antibodies do not lower but merely delay the development of diphtheria antitoxin. One year after the immunization all of the children had substantially more diphtheria antitoxin than is necessary to give a negative Schick reaction. All but one had more than 0.064 units per cubic centimeter of serum. None of the 31 children retested one year after the immunization for tetanus antitoxin and none of the 32 children retested for pertussis agglutinins possessed tetanus antitoxin or pertussis agglutinins in their preimmunization serums, and therefore it was not possible to study the effect of inherited antibody on immunization against tetanus and pertussis. The response to the tetanus toxin fraction was considered highly satisfactory; an average titer of 0.67 units was observed in the 31 children one year after the immunization. Lack of suitable criteria prevent proper estimation of the value of the pertussis vaccine, but 26 of the 32 immunized children (84%) showed a response as judged by agglutination tests.

## Michigan State Medical Society Journal, Lansing

*50:1305-1470 (Dec.) 1951*

Heart Research in Michigan. F. Johnston.—p. 1354.
Education and Community Service Projects. C. Dean.—p. 1358.
*Blood Lipids and Human Arteriosclerosis. H. E. Ungerleider and R. Gubner.—p. 1360.
Diagnosis of Pheochromocytoma. L. T. Iseri, D. Chandler, G. B. Myers and A. J. Boyle.—p. 1370.
Angiocardiographic Observations in Some Correctible Types of Congenital Cardiovascular Disease. M. M. Figley, A. M. Stern, J. L. Wilson and F. J. Hodges.—p. 1378.
Myocarial Infarction: Study of Acute Phase. F. J. Smith.—p. 1388.
Complication of Coronary Occlusive Disease. M. S. Chambers, R. E. Johnson and M. C. Kozonis.—p. 1402.
Some Observations on Rheumatic Fever Control Program of Michigan State Medical Society. L. De Vel.—p. 1410.
Rheumatic Fever. R. T. Lyons and D. S. Smith.—p. 1416.
Renal and Neurogenic Factors in Hypertension: Experimental Study. W. J. Kenfield, D. F. Bohr, R. R. Paterson and H. J. Kitto.—p. 1419.
*Operation for Coarctation of Aorta in Older Patients. F. D. Dodrill.—p. 1424.

## New England Journal of Medicine, Boston

### 245:875-916 (Dec. 6) 1951

*Uses of Nuclear Disintegration in Diagnosis and Treatment of Brain Tumor. W. H. Sweet.—p. 875.
*Idiopathic Thrombopenic Purpura in Childhood. W. A. Newton Jr. and W. W. Zuelzer.—p. 879.
Congenital Arteriovenous Fistulation of Lower Limb: Report of Case Successfully Treated by Total Excision. F. C. Leonard and G. A. Vassos Jr.—p. 885.
Bimedial Lobotomy: Its Superiority over Conventional Approach. J. Levine, M. Greenblatt and H. C. Solomon.—p. 888.
Allergy to Drugs. E. A. Carr Jr.—p. 892.

**Nuclear Disintegration in Brain Tumors.**—Research at the Massachusetts General Hospital revealed that radioactive isotopes may be utilized in clinical management of intracranial tumors. $P^{32}$ concentrates much more in brain tumors than in normal brain; hence a probe-type Geiger-Müller counter detecting beta radiation can be used to advantage to find and delineate such tumors at operation. $K^{42}$ also concentrates in these tumors; excessive gamma radiation following $K^{42}$ administration permits correct external preoperative localization through the intact skull in many cases. The special type of gamma rays emitted when a positron and an electron collide and are annihilated promises to be particularly valuable in the external localization of tumors. $B^{10}$, which largely captures slow neutrons and then disintegrates, can be concentrated sufficiently in brain tumors to suggest that irradiation with slow neutrons may be useful in their therapy.

**Thrombocytopenic Purpura in Childhood.**—The occurrence of idiopathic thrombocytopenic purpura is reported in 28 boys and 19 girls, who were followed for from six months to more than two years. This ratio of men to women contrasts with the well-known predisposition of adult women toward purpura, and the syndrome of idiopathic purpura in children differed from that in adults in several other significant respects. Children between the ages of two and eight years were most frequently affected. In the majority of the patients the disease appeared to be a benign self-limited condition of short duration. There was little evidence of a hereditary factor. A clear-cut relation to antecedent infection or to allergy could not be demonstrated. There was a suggestive tendency toward a seasonal incidence of the disease, most cases occurring in the spring. Bone marrow examination disclosed no consistent findings with regard to either megakaryocytes or degree of eosinophilia that could be correlated with the course or prognosis of idiopathic thrombocytopenic purpura, although to exclude other primary diseases of the marrow, aspiration is essential. Adequate criteria for splenectomy in idiopathic thrombocytopenic purpura of children have not been established, but should probably be reserved for cases of uncontrollable bleeding and chronic recurrent purpura. Successful results in patients treated by early splenectomy cannot be attributed to the operation, since spontaneous recovery is the rule. In chronic cases splenectomy may or may not result in a cure.

### 245:917-956 (Dec. 13) 1951

*Effect of BAL (2,3-Dimercaptopropanol) on Hepatolenticular Degeneration (Wilson's Disease). D. Denny-Brown and H. Porter.—p. 917.
*Use of Heparin-Gelatin-Dextrose in Venous Thrombosis and Pulmonary Embolism. C. Crane.—p. 926.
Harvard Public-Health Chest Clinic. M. Elkin and M. C. Sosman. —p. 930.
Dramamine as Adjuvant Measure in Psychogenic Vomiting. H. Kaplan, L. Hirsch and H. Flowers.—p. 934.
Allergy to Drugs (Continued). E. A. Carr Jr.—p. 935.

**Dimercaprol (BAL) in Hepatolenticular Degeneration.**—In the opinion of Denny-Brown and Porter one or two cases of hepatolenticular degeneration may be found in the outpatient department of any large general hospital, often mistakenly diagnosed as multiple sclerosis or Parkinsonism. Hepatolenticular degeneration is one of the few chronic degenerative diseases of the nervous system in which an associated visceral disorder, hepatic cirrhosis, offers possible clues to the nature of the pathological process. A chance observation by Mandelbrote and associates that dimercaprol (BAL or British anti-Lewisite), greatly increased the urinary output of copper in a patient with Wilson's hepatolenticular degeneration induced Denny-Brown and Porter to try dimercaprol in patients with hepatolenticular degeneration. They now report five cases in which dimercaprol was given. All five patients had the chronic pseudosclerotic type of hepatolenticular degeneration with a history of tremor in the upper limbs and dysarthria, progressing to titubation of the head and trunk, and dystonic rigidity. The illness had been present from 4 to 13 years before causing the patients to require assistance in eating, dressing, toilet, and walking. Improvement after a course of dimercaprol usually begins 14 days after the course and continues for the next 2 to 3 months. The patients continue to require maintenance treatment, but all are now able to take care of themselves, with the exception of one patient in whom intellectual and physical deterioration had reached a severe degree before treatment with dimercaprol was instituted. The authors feel that they have presented substantial evidence that the neurologic symptoms of hepatolenticular degeneration are related to the abnormal accumulation of copper compounds in the brain. The similarity of the resulting tremors and rigidity to those following manganese and mercury intoxication indicates a common action of this whole group of compounds. Regularly repeated maintenance injections of dimercaprol are necessary in hepatolenticular degeneration, as it does not appear feasible to eliminate copper from the diet. A course of injections of 1.0 to 1.5 cc. of dimercaprol in peanut oil twice daily for 10 days every second month appears to be adequate. In the beginning such courses may be given once a month until a stable clinical status i reached. The earlier the treatment can be instituted the mor complete will be the reversal of symptoms. These observation in hepatolenticular degeneration, a "degenerative" disorder tha is commonly familial, support the hypothesis that all such nervous diseases result from the cumulative effects of by-product of "inborn errors of metabolism" and offers hope for their ultimate effective treatment.

**Heparin-Gelatin-Dextrose in Thromboembolic Disease.**—Afte briefly discussing various attempts to prolong the action o heparin, Crane describes 100 surgical patients with thromboembolic disease who were treated with heparin-gelatin-dextros (depo®-heparin) sodium as the sole anticoagulant agent. He presents the histories of 6 of the 100 patients treated with heparin gelatin-dextrose who experienced severe bleeding; four bled fron the operative wound alone, a fifth bled from the operative woun and elsewhere, and a sixth bled from the urinary tract. Two additional patients had mild epistaxes while receiving heparin. Ther is no constant relation between the tendency to bleed and th clotting-time level in the presence of heparin. Four of the bleeding patients recorded here bled at clotting time levels usuall considered within the desirable therapeutic range. Just as afte femoral-vein division, an occasional patient will suffer anothe pulmonary embolism, and a few patients whose signs and symptoms of venous thrombosis in the leg have completely subside after heparin treatment will have a recurrence two days to tw weeks later. At times this recurrence may affect a different venou channel. The treatment with heparin-gelatin-dextrose failed i 7 of the 100 patients, inasmuch as four suffered further pulmonary embolism after heparin treatment and three showed a early recurrence of a deep venous thrombosis. In view of th seven failures, the results of the treatment were not as good a had been hoped.

## Psychiatric Quarterly, Utica, N. Y.

### 25:557-750 (Oct.) 1951. Partial Index

Purposeful Inhalation of Gasoline Vapors. O. W. Clinger and N. A Johnson.—p. 557.
Drug-Modified Electric Shock Therapy: Clinical Response to Partia Seizures Facilitated by Anticonvulsant Drugs, Diphenylhydantoin an Mephenesin, Alone and in Combination. W. L. Holt and W. Borkowski.—p. 581.
Psychotherapeutic Evaluations of Birth-Trauma Analysis: Preliminar Contribution to Fodor's Therapy. M. L. Peerbolte.—p. 589.
Treatment of Drug Addiction: Preliminary Report. E. Y. Williams —p. 604.
Observations on Insulin Subshock Treatment in Veterans Administratio Mental Hygiene Clinic. K. Nussbaum, H. Goldsmith and E. C. Henry —p. 641.
Psychological Aspects of Management of Labor. N. Kalichman.—p. 655
Psychodynamic Motivational Factors in Suicide. H. Hendin.—p. 672.
Psychical Disorders Among Inmates of Concentration Camps and Repatriates. J. Tas.—p. 679.

## Psychosomatic Medicine, New York

### 13:335-420 (Nov.-Dec.) 1951

•Life Situations, Emotions, and Neurocirculatory Asthenia (Anxiety Neurosis, Neurasthenia, Effort Syndrome). M. E. Cohen and P. D. White.—p. 335.
Androgyny, Weight, and Personality. L. M. Bayer and S. Reichard. —p. 358.
Primary Atypical Facial Neuralgia: Hysterical Conversion Symptom. G. L. Engel.—p. 375.

**Neurocirculatory Asthenia.**—This report summarizes the present day knowledge about neurocirculatory asthenia, which is also known under such terms as anxiety neurosis, neurasthenia, and effort syndrome. It is a chronic disorder that runs in families. The chief complaints of these patients are choking and smothering spells, rapid heart beat, pain in the chest, nervousness, "get tired easily," "irritable with children," "dizziness," or "I believe I have heart trouble." Their symptoms are brought on by exertion, other sickness, emotion-provoking situations, pregnancy, heat and cold, military service, or no obvious factors. Abnormalities have been demonstrated in responses to various stimuli and stresses, in pulses, minute respiratory volumes, ventilatory efficiency, blood lactate concentration, work performances, oxygen consumption, and wincing and withdrawal reactions. Pain, cold, muscular effort, carbon dioxide, noise, flash, and "anticipation" are likely to bring abnormal responses at lower stimulus thresholds. The 24 hour urinary excretion of 17-ketosteroids was the same in patients as it was in comparable control subjects. Since this has been considered by some to be an "index of stress," this finding suggests either that excretion of 17-ketosteroids is not a reliable or complete indicator of "stress" or that the disorder does not call forth the same "stress mechanisms" as some other illnesses. Although patients with neurocirculatory asthenia had anxiety as a characteristic phenomenon, they did not develop to any unusual extent diseases such as hypertension, peptic ulcer, asthma, ulcerative colitis, or thyrotoxicosis, which some authors believe to be caused by anxiety. Patients with this disorder do as well with reassurance as with psychotherapy, psychoanalysis, electric convulsion therapy, ergotamine tartrate, and adrenal denervation.

## Rhode Island Medical Journal, Providence

### 34:625-680 (Dec.) 1951

Pernicious Anemia in Old Age. I. V. Basylewycz.—p. 641.
Rectal Bleeding. T. A. Krolicki.—p. 645.
•Congenital Heart Block—Review and Report of Case of Congenital Complete Heart Block with Rheumatic Fever, and Physiological Studies. A. A. Jaworski and J. E. Farley.—p. 649.
Doctors and the New Tax Bill. R. E. Jacobson.—p. 658.

**Congenital Heart Block and Rheumatic Fever.**—As far as the authors have been able to ascertain, complete congenital heart block with acute rheumatic fever has not been previously reported. Their patient was a 12-year-old boy in whom bradycardia was first noted at the age of 14 months, and who was admitted with acute rheumatic fever. During his hospital stay numerous blood pressure readings and graphic tracings were obtained to record the physiological effects of posture, exercise, respiration, carotid stimulation, atropine, epinephrine, and ephedrine on the completely dissociated auricles and ventricles. A review of the literature reveals 64 acceptable cases of congenital heart block of which 55 were complete. A diagnosis of congenital heart block is based on auriculoventricular dissociation recorded by graphic methods in a young individual, bradycardia at an early age, and absence of history of any infection that might be a cause of heart block. Congenital cardiac anomalies and the occurrence of syncopal attacks at an early age substantiate the diagnosis of congenital heart block. The authors feel that the reported case fulfills the diagnostic criteria. During the height of rheumatic fever activity a decreased idioventricular rate was observed. In the course of the physiologic studies it was found that atropine had the greatest acceleratory action on the idioventricular rate.

## Rocky Mountain Medical Journal, Denver

### 48:909-1000 (Dec.) 1951

Heart Disease and Pregnancy. E. G. Holmstrom.—p. 931.
Value of Photoradiography in Detection of Heart Disease: Follow-Up Study of Cardiac Lesions Found in Mass (70 mm.) X-Ray Survey. W. Van Camp and D. Rowe.—p. 934.
Diagnosis and Management of Rheumatic Fever. S. J. McClendon. —p. 938.
Irritable Colon as Complication of Disease of Gallbladder and Peptic Ulcer. E. J. Donovan and S. M. Jordan.—p. 942.
Obstetric Anesthesia—1951. L. W. Roessing.—p. 945.
Plausible Treatment of Rheumatoid Arthritis: Adreno-Nephro-Colopexy. O. S. Fowler.—p. 949.

## Southwestern Medicine, El Paso, Texas

### 32:397-432 (Dec.) 1951

Aphorisms: Cardiovascular Truths and Precepts. A. M. Babey.—p. 408.
Nodular Goiter and Carcinoma of Thyroid. L. Goldman.—p. 416.
Epidemic Myalgia (Pleurodynia). A. C. Service.—p. 419.
ACTH (Observations as Regards to Wound Healing). B. L. Burditt. —p. 420.

### 33:1-36 (Jan.) 1952

Aphorisms: Truths and Concepts Pertaining to the Chest. A. M. Babey. —p. 14.
Relation of Pancreatic Secretion to Peptic Ulcer Formation. E. J. Poth and S. M. Fromm.—p. 16.
Plumer-Vinson Sydrome. A. C. van Ravenswaay and L. L. Titche. —p. 20.
A Case of ACTH Sensitivity. R. J. Antos.—p. 23.

## Western J. Surg., Obst. & Gynecology, Portland, Ore.

### 59:603-672 (Dec.) 1951

Intraductal and Intracystic Papillomas of Breast. S. T. Chester and H. G. Bell.—p. 603.
Adrenal Dysfunction: Etiological Factor in Late Toxemia of Pregnancy. W. B. Patterson.—p. 610.
Pancreatic Enzyme Activity of Peritoneal Exudate Collected by Sump Drainage. O. B. Scott and H. N. Harkins.—p. 619.
Hiatal Hernia: Cause of Persitent Gastrointestinal Disturbances in Pregnancy W. R. Penman.—p. 622.
Definitive Treatment of Injuries to Major Blood Vessels Incurred in Korean War. E. H. Dickinson, T. E. Ashley and F. Gerbode.—p. 625.
Colles' Fracture: Study of End Results with Conservative Management. A. B. Sirbu and B. Colloff.—p. 635.
Surgical Lesions Simulating Lumbar Disc Syndrome. E. J. Morrissey. —p. 643.
Clinical Experience with Gastric Resection in Treatment of Peptic Ulcer. J. S. Wellington, L. G. Brizzolara and H. L. Silvani.—p. 648.

## Yale Journal of Biology and Medicine, New Haven

### 24:83-168 (Nov.) 1951

•Influence of Diet and Insulin on Incidence of Cataracts in Diabetic Rats. R. R. Rodriguez and W. A. Krehl.—p. 103.
Susceptibility to Fibrosarcomas in 2NHO Mice. L. C. Strong.—p. 109.
Public Health Aspects of Atomic Disaster. G. James.—p. 116.
Hypothalamic Control of Food Intake in Rats and Cats. B. K. Anand and J. R. Brobeck.—p. 123.
Homologous and Heterologous Transplantation of Pancreatic Tissue in Normal and Diabetic Mice. H. Browning and P. Resnik.—p. 141.
Effects of Carcinogens on Embryonic Mouse Tissue Transplants, with Special Reference to Lung. J. S. Wood Jr.—p. 153.

**Diet and Incidence of Cataracts.**—The influence of different diets given for six months on the incidence of diabetes in rats after subtotal pancreatectomy and on the development of cataracts in partially pancreatectomized and alloxan diabetic rats was studied. The incidence of diabetes decreased in 95% of pancreatectomized animals fed a high protein diet, while only a slight reduction was observed in the incidence and severity of diabetes with the addition of cholesterol or the removal of choline in the high carbohydrate diet. The incidence of cataracts was greater in diabetic rats fed a high carbohydrate diet; a smaller incidence was observed in high protein fed animals, while no cataracts developed in rats fed a high fat diet. Treatment with insulin can prevent the onset of cataracts in rats with diabetes of at least 10 months' duration. In summary, the development of diabetic cataracts is directly correlated with the severity of the disease (degree of hyperglycemia and glycosuria) and the duration of diabetes, and inversely correlated with the age of the rats.

# FOREIGN

## British Medical Journal, London

2:1475-1534 (Dec. 22) 1951

Male Fertility. E. J. Farris.—p. 1475.
Sexual Disorders in Women: Their Medical Significance. J. Malleson.—p. 1480.
Pathological Examination of Nine Cases of Retrolental Fibroplasia. B. A. Bembridge and C. R. S. Jackson.—p. 1484.
Case of Polyarteritis Nodosa Treated with Cortisone. M. I. Drury, M. D. Hickey and J. P. Malone.—p. 1487.
Gastric Carcinoma and Acute Perforation. T. L. Kennedy.—p. 1489.
*Cough Fracture. J. B. Mitchell.—p. 1492.
Cough Fracture of Ribs Unassociated with Pulmonary Tuberculosis. N. Wynn-Williams.—p. 1494.
Westergren and Wintrobe Methods of Estimating E. S. R. Compared. D. Gilmour and A. J. Sykes.—p. 1496.
Interdigestive Gastric Secretion in Duodenal Ulcer: Study of Comparative Inhibition by Hexamethonium Iodide and L-Hyoscyamine. M. J. Riddell.—p. 1498.
Mechanism of Renal Excretion of Methonium Compounds. I. M. Young, H. E. de Wardener and B. E. Miles.—p. 1500.

**Cough Fracture.**—Mitchell says that his interest in cough fracture was stimulated by the case of a woman, aged 32, who had pain around the seventh left intercostal space in the anterior axillary line. The pain was worse on coughing and on deep breathing. Her doctor heard a pleural rub, and gave sulfathiazole. A chest roentgenogram was made six weeks later. The chest appeared normal from the standard posteroanterior view, but the left anterior oblique view showed a recent fracture of the seventh rib on the left side. Cough fractures were specially looked for during 1950 at the Cambridge Chest Clinic among patients with pleural pain in whom no other cause was apparent. An oblique x-ray view was taken in addition to the standard anterior view. The examination was repeated in doubtful cases after callus had had time to form. Of 64 such patients, 14 had fractured ribs and in all coughing occurred before the onset of pain. Coughing was vigorous in all cases except one in which the patient tried hard to suppress it. In 12 patients pain was referred to an area surrounding the anterior axillary line and the segment corresponding to the fractured rib or the rib below. In one patient the fifth rib on the right side was fractured just in front of the midaxillary line and pain was referred to the seventh and eighth spaces in the scapular line; in another a fractured second left rib gave rise to pain along the vertebral border of the left scapula (pressing on the rib or working the serratus anterior reproduced the pain). Coughing and deep breathing made the pain worse in all cases.

## Fortschr. Röntgenstrahlen & Röntgenpraxis, Stuttgart

75:521-660 (Nov.) 1951. **Partial Index**

oentgen Hemolysis: Biologic Action of Ionizing Rays. B. Lindemann.—p. 523.
Melanoblastoma: Therapy with Short Distance Irradiation. H. Hergarten. and L. Hergarten.—p. 559.
Observations on 68 Seminoma Patients With and Without Metastases: Irradiation Following Semicastration. W. Renner.—p. 577.
Plastic Induration of Penis. W. Molineus.—p. 584.
Traumatic Deformities of Head of Humerus as Result of Recurrent Dislocations of Shoulder. F. Gauwerky.—p. 607.
Traumatic Carcinoma of Lung: Pathogenesis of Cicatricial Cancer of Lung. J. Dahlmann.—p. 628.

**Roentgen Hemolysis.**—The electron microscope solved the long disputed question whether the erythrocyte is a reticulated or a balloon structure. The mature erythrocyte of the peripheral blood is a non-nucleated cell surrounded by a semipermeable membrane composed of several layers. The outermost layer is composed of lipoids; the stromatin layer below this preserves structure and shape. The erythrocyte contains no reticulum, but consists chiefly of hemoglobin, which probably forms polymolecular associations, the stability of which is largely dependent on the presence of salts in solution. The marginal portions of the cell probably contain remnants of protoplasm. The contents of the erythrocyte can be lost either by diffusion or by structural breakdown. The first form of hemolysis that can be induced by water or hypotonic solutions is an osmotic hemolysis and includes also the colloid osmotic hemolyses that are produced by changes in the permeability of the membrane. Roentgen hemolysis is an example of such a colloid osmotic hemolysis. It has been assumed that irradiation does not produce primary denaturation of the membrane but only sensitizes its effective ions; this would imply that roentgen irradiation acts only as a sensitizer. However, electron-optical structural analysis on irradiated erythrocytes and on those osmotically hemolyzed suggests that the alteration in the membrane premeability responsible for the hemolysis is produced by its primary denaturation. The velocity of hemolysis produced by x-rays is regulated by three factors (1) by the reaction between the hemolytic factor and the cel membrane, (2) by the penetration of the salt, and (3) by th disintegration of the cellular contents into a diffusible mass; th last factor playing the decisive part. Comparative studies wit the electron microscope revealed that denaturations caused b acid or by rays provoke morphologically similar alterations c the membrane. Suspensions containing plasma hemolyze to lesser extent than suspensions without plasma. The denaturatio of the erythrocytic membrane is therefore regarded as an i direct consequence of irradiation. The physiological degree scatter in the reaction of an irradiated erythrocyte suspension thought to depend on two parallel mechanisms: a genuine b ological variability in consequence of their age and a protecti effect produced by aggregation of cells.

## Geburtshilfe und Frauenheilkunde, Stuttgart

11:963-1058 (Nov.) 1951. **Partial Index**

Remarks on Genesis of Neurovegetative Disturbances in Pelvis. L. Sei —p. 963.
The Crush Syndrome: A Dangerous Complication in Obstetrics and Gy cology. G. Schramm.—p. 977.
*Why Both Uterine Tubes Should Be Removed at Time of Hysterecton H. Knaus.—p. 984.
Extrauterine Pregnancy—Glandular Hyperplasia. H. Kief and H. Mu —p. 990.
Hormonal Treatment of Pregnancy Paresthesias. F. Hoffmann.—p. 10
Disturbances in Liver Function During Hyperemesis Gravidarum: Tre ment. V. Friedberg and E. Kirnberger.—p. 1010.
Postclimacteric Myomas. K. Richter and W. Lakomy.—p. 1016.
Hematemesis in Preeclamptic Condition. P. Schwarz.—p. 1022.

**Removal of Uterine Tubes During Hysterectomy.**—Knaus ca attention to the complications that may result when the uteri tubes are left in situ at the time of hysterectomy. He stress that after hysterectomy the tubes are not only useless, but m cause serious complications. The tubes have been known to the cause of a fulminating suppurating peritonitis. Ligation the uterine end of the tube produces a disturbance in the blo and lymph supply, increases secretion of the tubular epitheliu transudation from the engorged vessels, and possibly inflamm tory exudation, and these changes in turn may lead to closu of the ampullar end of the tube and to hydrosalpinx. Remo of the tubes prevents development of hematomas that are di cult to control. Furthermore, an existing tubal pregnancy m be overlooked if the tubes are left in place, and finally there the possibility that the tubal pavilion will prolapse into t vagina. The author saw two woman who had this type of p lapse, and he stresses that the uterine tubes should always removed with the uterus.

## Lancet, London

2:1149-1188 (Dec. 22) 1951

100 Years Ago. J. Charles.—p. 1149.
*Outbreak of Q Fever in East Kent. M. S. Harvey, G. B. Forbes a B. P. Marmion.—p. 1152.
Rhesus Grouping with Cells Suspended in Saline Solution and W Albumin-Agglutinating Antisera. D. E. Mellon and C. J. Dawson.—p. 1157.
Effect of Adrenocorticotropic Hormone on Diuretic Response to Water in Panhypopituitarism. T. M. Chalmers and A. A. G. Lewis.—p. 1158.
Gas Cysts of Intestine with Pneumoperitoneum. P. Somerville.—p. 1160.
Nephrotic Syndrome Treated with Intravenous Dextran. P. D. Bedford and P. M. G. Broughton.—p. 1161.
*Four Cases of Appendicitis in One Family in a Week. J. M. E. Jewers.—p. 1163.

**Outbreak of Q Fever.**—Harvey and associates describe an outbreak of Q fever in which 28 persons became ill. The illness was mild and was identified as Q fever by serological studies. Epidemiological investigations excluded spread of the disease from person to person, by contact with cows, sheep, and goats, by visits to potentially infected environments, by consumption of raw milk, and by bites of insects. The opening of a packing-case and removal of the straw it contained some 19 days before the outbreak may have been responsible.

**Familial Appendicitis: Four Cases in One Week.**—Five members of one family were hospitalized for suspected appendicitis in one week, but in one case the abdominal pain was probably due to mild gastroenteritis. In the first of the four who underwent appendectomy, the appendix was gangrenous, perforated, and covered with omentum which oozed pus when touched. A coil of terminal ileum was adherent to inflamed omentum and appendix. Omentum, ileum, and fibrin had formed the walls of the abscess, which had burst its confines. When tissue forceps were applied to the healthy portion of the appendix of the second patient, the diseased portion burst and a foul smelling fluid emerged. In the third patient, who was known to have had threadworms, appendicitis or mesenteric adenitis was diagnosed. On opening the appendix following its removal, it was found to be congested with swollen mucosa and mucopus and contained one threadworm. The fourth patient had catarrhal appendicitis. Whether the changes found in his appendix began as the follicular appendicitis that may accompany nonspecific mesenteric adenitis is an interesting question.

## Minerva Medica, Turin

### 42:645-668 (Oct. 27) 1951

Lipotropic and "Hepatoprotective" Factors in Bismuth Poisoning. A. Del Guerra.—p. 650.
*First Results of Ultrasonic Waves in Treatment of Buerger's Disease at San Camillo Hospital in Rome. A. D'Agostino and M. Risi.—p. 654.
Eutrophic and Anabolic Preparations Based on Embryo Lipids: Clinical Study. C. Fiorio.—p. 657.

**Ultrasonic Waves in Buerger's Disease.**—During the first six months of the last year 23 men with thromboangiitis obliterans in whom all prior medical, physical, and surgical treatment had failed were treated with ultrasonic waves. None of the patients had syphilitic or diabetic arteritis, arteriosclerosis, or Raynaud's disease. In four patients who had undergone surgical treatment, gangrene was present in almost all toes, ulceration had progressed to both surfaces of the foot, and general condition was extremely poor. In five patients ulcerations were moderate and limited to one toe, with edema, partial or total cyanosis, ischemia, and pain. In 14 patients the disease was characterized by pain in the calf after slight walking and chills associated with paresthesia in the feet. Ultrasonic wave therapy was carried out locally with the feet of the patients of the first two groups immersed in water. Additional ultrasonic waves were applied to the calf of the 14 patients of the last group. The dose consisted of 1 watt per square centimeter of the surface of the generator (5 sq. cm. in this case) with a frequency of 1,000,000 cycles per second. One daily application lasting two minutes was carried out for 20 days, and after an interval of 20 to 30 days, 20 additional applications followed. Results proved that this is the therapeutic dose of choice. In two of the four patients whose condition was critical, necrosis regressed, proliferation in the necrotic tissues was observed, and edema and the bluish discoloration of the skin disappeared. Conditions were unchanged in the other two. Of the five patients with moderate thromboangiitis obliterans, three recovered completely and improvement was pronounced in the other two. Improvement was likewise gratifying in the remaining 14 patients. The good effects may be attributed to improvement in the collateral circulation of the irradiated zone. Ultrasonic waves liberate histamine from cells. The vasodilating activity of histamine, that after the first few minutes of therapy is increased to four times the initial level, may improve local circulation and lead to restoration of the tissues already impaired by ischemia. The histamine level regresses to normal within one hour. The occurrence of hemorrhages from ulcerations following the first application of ultrasonic waves is a significant indication of vasodilatation. Although the follow-up period is too short to permit a definite evaluation of the results obtained, ultrasonic waves therapy may become a valuable physical agent in treatment of thromboangiitis obliterans.

## Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

### 95:3365-3460 (Nov. 17) 1951. Partial Index

Segmental Resection in Pulmonary Tuberculosis. J. K. Kraan.—p. 3375.
*Cyst Formation in Lung After Staphylococcic Sepsis. J. Glazenburg.—p. 3388.
Reviewing of Insight in Treatment of Renal Tuberculosis. W. A. Moonen.—p. 3394.

**Pulmonary Cysts After Staphylococcic Sepsis.**—Glazenburg presents the histories of two patients, a child of 3 years and a young man of 21, in whom multiple pulmonary cyst-like cavities developed after staphylococcic sepsis. The lungs of these two patients contained at the same time cavities and infiltrations and the one seemed to be transformed into the other at times. In view of the fact that the cyst-like cavities showed neither fluid nor infiltrated walls, they did not have the appearance usually associated with pulmonary abscesses. They developed as the result of a staphylococcic sepsis that had been localized in another organ and had become quiescent. The author cites reports on pulmonary infiltrations and thin-walled cavities and emphasizes that the patients described here are noteworthy because they had so many cavities and that in both conservative treatment resulted in complete recovery. Observations in these two cases induced him to try conservative treatment, in the form of penicillin therapy, in two infants, two and three months old, who had been referred for surgical treatment with a diagnosis of unilateral congenital lung cysts. These two also recovered with conservative treatment. The author mentions that Potts and Riker reported that they operated on several patients with a diagnosis of diaphragmatic hernia for pulmonary cysts that had developed after staphylococcic infections.

### 95:3461-3556 (Nov. 24) 1951. Partial Index

Scleroderma with Gastrointestinal Manifestations. L. R. de Four and H. M. van der Linde.—p. 3469.
Undiagnosed Otitis Media. G. A. Hoogland.—p. 3477.
Two Unusual Cases of Hydrocephalus in Nursing Infants. M. P. A. M. de Grood.—p. 3485.
*Postvaccinal Encephalitis: Treatment with Corticotropin (ACTH). J. A. T. Ligterink.—p. 3490.

**Corticotropin (ACTH) in Postvaccinal Encephalitis.**—Ligterink describes the histories of three patients with encephalitis. The first case concerned a two-year-old child in whom symptoms of encephalitis developed during an attack of measles. Injections of corticotropin in decreasing doses, beginning with 75 mg. divided in six doses on the first day and terminating with 10 mg. on the 11th day, resulted in complete recovery. In the other two patients, a young man of 21 and a woman of 60, the encephalitic symptoms developed after vaccination. In these two cases of postvaccinal encephalitis, treatment with corticotropin seemed to exert favorable effects.

## Nordisk Medicin, Stockholm

### 46:1627-1666 (Oct. 31) 1951. Partial Index

*Course and Prognosis in Humeroscapular Periarthrosis with Special Regard to Cases with Generalized Symptoms. E. Meulengracht and M. Schwartz.—p. 1629.
Whale Hypophysis and ACTH. J. Valsø.—p. 1633.
*Dekamethonium ("Synacur") as Curare Substitute in Electroshock. K. Jacobsen.—p. 1635.
Curare Treatment of Spastic Children. B. Helvang Madsen, H. Laursen and J. Ugland.—p. 1638.
Procaine Intravenously as Supplement During Nitrous Oxide-Pethidine Anesthesia. B. Flemming Haxholdt and O. Øyen.—p. 1640.

**Humeroscapular Periarthrosis and Generalized Symptoms.**—In 78 cases of humeroscapular periarthrosis treated from 1945 to 1951, the duration of the disorder before admission was as a rule less than three months. Most of the 18 men and 59 women were between 50 and 70 years old. In most cases no causative factor could be established. In 21 there was concomitant thyroid infection, and in 14 concomitant Dupuytren's contracture. In five men and 13 women there were generalized symptoms of anemia, increased sedimentation rate, protracted elevation of temperature, and loss of weight. The disorder usually lasted from six months to a year, but the final prognosis was good. In follow-up of the 71 surviving patients after an average of 3.2 years, Meulengracht and Schwartz found that 60 were [illegible]d only

5 of the remaining 11 had had symptoms for more than two years, after which time few recover. The prognosis for the accompanying Dupuytren's contracture was unfavorable. The course and prognosis in humeroscapular periarthrosis seemed to be independent of the treatment applied, and cases with generalized symptoms did not differ from the uncomplicated cases. Roentgen treatment of the shoulder, applied in 21 cases, had no apparent effect.

**Decamethonium ("Synacur") as Curare Substitute in Electroshock.**—Jacobsen says that from late 1950 to June, 1951, decamethonium ("synacur") was used as a substitute for curare in 530 electroshock treatments of 30 men and 87 women between 35 and 50. No dangerous complications occurred. The dose was highly individualized. Grave renal abnormalities are an absolute contraindication to use of the substance. Because of individual sensitivity, administration of 0.05 to 1 mg. as a test dose is advised. Relatively small doses of 0.04 to 0.15 mg. per kilogram of body weight give sufficient muscle relaxation to prevent complications in the form of fractures and muscular pain in electroshock. Because of the danger of respiratory depression, means of administering oxygen must be available, and the personnel must be familiar with artificial respiration.

## Practitioner, London

### 167:573-676 (Dec.) 1951. **Partial Index**

Problem of Chronic Nasal Catarrh. W. A. Mill.—p. 577.
Treatment of Acute Tonsillitis. J. W. S. Lindahl.—p. 585.
Treatment of Acute Sinusitis. G. Livingstone.—p. 590.
Tuberculosis of Upper Respiratory Tract. J. C. Hogg.—p. 596.
*The Husky Voice. A. S. H. Walford.—p. 607.*
Upper Respiratory Infections in Infants. A. V. Neale.—p. 614.
*Tonsils and Adenoids in Children. W. McKenzie.—p. 622.*
Diverticulosis of Colon. B. Myers.—p. 629.
*Terramycin and Venereology. R. R. Willcox.—p. 636.
Some Clinical Uses of Tetraethylammonium Bromide. T. H. Howell. —p. 641.

**Terramycin in Venereology.**—According to Willcox aureomycin, chloramphenicol, and terramycin all have some action upon all of the venereal diseases. In this report he appraises the present status of terramycin in treatment of venereal infections. With regard to gonorrhea he says that although terramycin in small doses is perhaps not quite as successful as a single injection of procaine penicillin, it is a valuable alternative for patients who do not respond to penicillin, and is a first choice for patients who fear the injection or are allergic to penicillin. It is as effective as aureomycin in treatment of lymphogranuloma venereum, at least as effective as aureomycin, chloramphenicol, and streptomycin in treatment of granuloma inguinale, and is the most effective against nonspecific urethritis. It is suitable for the mass treatment of the treponematoses under certain conditions, and has proved effective in the treatment of yaws. Its use in the treatment of syphilis must still be regarded as experimental. Terramycin thus appears to be potentially useful in treatment and in prophylaxis of the venereal diseases.

## Presse Médicale, Paris

### 59:1651-1670 (Dec. 12) 1951. **Partial Index**

*Tuberculous Endocarditis and Rheumatic Cardiopathy; Bouillaud's Disease and Tuberculosis. P. Delore.—p. 1651.
*Glomerulohyalinosis of Diabetic Patients (Intercapillary Glomerulosclerosis of Kimmelstiel-Wilson Type): Clinical Study. E. Azerad, E. Nataf, J. Akseven and Alagille.—p. 1654.

**Tuberculous Endocarditis and Rheumatic Cardiopathy.**—The occurrence of valvular cardiopathy is reported in 88 patients between the ages of 11 and 73, with or without history of acute articular rheumatism and with a personal or familial history of tuberculosis. According to the author, there is a greater incidence of inflammatory tuberculous endocarditis as well as of tuberculous acute articular rheumatism than has generally been believed. Differentiation of these conditions and so-called Bouillaud's disease is not possible. The syndrome of acute articular rheumatism associated with endocarditis frequently originates, particularly in young persons, from an inapparent attack of tuberculosis; in 50% of the author's patients aged less than 20, the reaction to the cutaneous tuberculin test was positive. In young persons tuberculosis is the most frequent cause of valvular cardiopathy without definite etiology. There will be no agreement with this concept, however, as long as laboratory evidence of tuberculosis is required, since laboratory findings are unreliable or absent in this form of latent tuberculosis. Rather, one should recognize the value of clinical and particularly of familial findings. The large number of the author's cases of endocarditis associated with acute articular rheumatism and with personal or familial manifestations of tuberculosis suggest that "Bouillaud's disease" is not an entity independent of tuberculosis. It seems definitely wrong to use the term "rheumatic Bouillaud's disease" for cases of tuberculous origin. It may be true that these cases will not be observed in tuberculosis hospitals and sanatoriums, but it is of great importance to ascertain methodically the tuberculous origin of valvular cardiopathy of undetermined etiology, particularly in young persons, by history, thorough clinical examination, and by developing biological tests that may be more sensitive than the simple cutaneous tuberculin test. Cases of acute articular rheumatism of Bouillaud's type, rheumatic cardiopathies (particularly mitral stenosis), and symptoms of toxic diffuse goiter may be observed frequently in families in which atypical manifestations of tuberculosis may be detected on thorough search.

**Kimmelstiel-Wilson Syndrome.**—Of 15 diabetic patients between the ages of 34 and 71 with the Kimmelstiel-Wilson syndrome, eight died and necropsy was performed in seven. Result of microscopic examination of the renal lesions will be reported in a later paper, but the authors state that the nature of th microscopic lesions induced them to prefer the term glomerulo hyalinosis to intercapillary glomerulosclerosis. In the patient reported on the renal syndrome was characterized by edema albuminuria, with microscopic hematuria and cylindruria, hypertension, and hyperazotemia. Of the 15 patients, 8 had diabetic retinitis and cataract. The duration of diabetes mellitus varied from 2 to 20 years, with an average of about 12 years. Th long course of diabetes mellitus preceding the appearance o renal complications was conducive to the conclusion drawn by other workers that the diabetes mellitus may be benign, but th occurrence of diabetic coma or precoma in four of the authors patients showed that the condition is not always moderate o easily controlled. Changes in the chemistry of the body fluid varied as follows: in general the total serum cholesterol leve was between 200 and 300 mg. per 100 cc., the protein level wa normal or below normal, and the serum lipid level was norma or increased. Following a long period of latency, the disease was manifested by controllable edema and albuminuria tha eventually became irreversible and was associated with cardiorenal decompensation. In this final stage the glomerulohyalinosis may have become glomerulosclerosis.

## Revista de Medicina e Cirurgia de São Paulo

### 11:415-462 (Sept.) 1951. **Partial Index**

Shigellas (Dysentery Bacilli) and Shigellosis. J. Toledo Mello.—p. 415
*Testosterone Propionate in Metastases of Cancer of Breast. J. Benzadon —p. 429.
Endemic Amebiasis in São Paulo. F. Pompêo do Amaral.—p. 443.
Acute Appendicitis: Case. J. Soares Hungria.—p. 453.

**Testosterone Propionate in Metastases from Breast Cancer.**—A group of 105 women were observed for 12 years after mastectomy for breast cancer. All patients had postoperative roentgen therapy, castration, either roentgenologic or surgical, and a weekly dose of 25 to 50 mg. of testosterone propionate for several years after mastectomy, up to a total of 2,000 to 3,000 mg. In the presence of metastases or of local recurrence of cancer, the dose of testosterone propionate was increased to 50 mg. daily up to a weekly dose of 200 to 300 mg. for several weeks. The total dose was 3,000 to 4,000 mg. Histological study of metastatic tissues and axillary lymph nodes before and after completion of treatment was made in all cases. The author concludes that the five year survival rate following mastectomy preceded and followed by testosterone propionate therapy is the same as the rate after mastectomy without the drug. It is 28% in patients without axillary metastases and 58% in patients with metastases. The drug causes improvement of the general condition, appetite, strength, and body weight. In cases of vertebral metastases pain is greatly relieved, and roentgenologically there is recalcification of metastatic lesions (except when the spine shows the roentgen aspect of the so-called "metastatic ivory vertebra"). The drug has no effect on metastases in the soft parts of the body. It does not prevent development of new cutaneous or osseous metastases and reappearance of pain from new vertebral metastases. In the majority of cases it has a virilizing effect: The voice changes to a male pitch, and a beard and marked hypertrichosis appear. Menstruation greatly diminishes or permanently stops.

## Schweizerische medizinische Wochenschrift, Basel

### 81:1165-1188 (Dec. 1) 1951. Partial Index

Dissecting Aneurysm of the Coronary Arteries. H. J. Schmid.—p. 1170.
Epidemic Occurrence of Virus Disease with the Aspects of a General Infection and Accompanied by Irregular, Sometimes High and Prolonged Fever (Atypical Infectious Mononucleosis). E. Attinger Sr. —p. 1172.
*Treatment of Postoperative Alarm Reaction with Male Sex Hormone. P. Flückiger.—p. 1174.
Bronchial Asthma and Corpus Luteum Hormone. R. Tachezy.—p. 1180.

**Male Sex Hormone in Postoperative Alarm Reaction.**—Flückiger presents a new concept of the alarm reaction, the first phase of Selye's adaptation syndrome, pointing out that the hormonal changes during the "shock defense" phase, with a predominence of the 11-oxycorticosteroids, represent not an adaptation but rather a defective regulation that is the underlying cause of "postoperative disease." Normally there is an equilibrium between the anabolic effect of the 17-ketocorticosteroids and the catabolic effect of the 11-oxycorticosteroids, and this equilibrium is impaired during the alarm reaction. Attempts were made to restore the hormonal equilibrium during the postoperative phase by administering male sex hormones, which are 17-ketosteroids. In 65 patients in whom the surgical risk was rather great, treatment with sex hormone was begun shortly after the operation, and the androsteroids exerted a favorable effect on the postoperative course; shock was reduced and recovery was more rapid. There was no serious circulatory disturbance during the postoperative phase. Testosterone improved the intestinal peristalsis. Wound healing was normal. The blood pictures of those treated with male sex hormones showed an earlier and more rapid increase in lymphocytes and eosinophils, and the postoperative thrombocytosis was reduced in extent and duration. It is assumed that there is a connection between the alarm reaction and thrombosis. Because of the still rather limited number of cases, it is as yet impossible to ascertain whether the male sex hormones will be adequate for prophylaxis of thrombosis, but the impressions gained seem to suggest it.

## Semaine des Hôpitaux de Paris

### 27:3771-3816 (Dec. 22) 1951. Partial Index

Attempt at Interpretation of Acute Leukemia. J. Olmer and E. Gascard. —p. 3771.
*Retinal Manifestations in Acute Leukemia: Clinical, Ophthalmologic and Anatomic Study. J. Olmer, Y. Poursines and G. Farnarier.—p. 3783.

**Retinal Manifestations in Acute Leukemia.**—Ophthalmoscopic examination of 26 patients between the ages of 15 and 65 with acute leukemia revealed anemic changes of various degree of the fundus oculi in 19 and retinal lesions characteristic of severe anemia in six. Retinal hemorrhages were observed in 19 instances, and in 14 they were of a very peculiar type, isolated and few in number; the term "hemorrhages with a clear center" has been coined to describe them. They were observed more frequently in patients with hemorrhagic manifestations in other parts of the body, but thrombocytopenia did not seem to be responsible for their occurrence. Preretinal hemorrhages were observed in only two instances and papilloretinal edema in eight. Of the 19 patients with hemorrhages, the bleeding time was considerably increased in 11 and moderately decreased in 6, but an increased number of leukocytes did not seem to influence the ophthalmoscopic picture, since more than 20,000 white blood corpuscles were observed in only 8 patients. The appearance of the fundus oculi was the same in patients with lymphoblastic and with myeloblastic leukemia. The retinal lesions appeared and disappeared rapidly and varied daily. The microscopic examination, though inconclusive, suggested that the peculiar hemorrhages "with a clear center" resulted from extravasation of blood around leukemic deposits on the inner surface of the retina or on the optic papilla, as demonstrated in two instances. Three types of lesions were observed on microscopic examination as follows: leukemic infiltration of the choroid involving only the posterior pole but not the iris and retina in 11 instances; edematous or hemorrhagic exudates of the retina, particularly posterior but also inside of the various layers of the membrane; and optic neuritis in the form of proliferation of neurogliar cells without leukemic infiltration.

## Tidsskrift for Den Norske Laegeforening, Oslo

### 71:701-752 (Nov. 15) 1951. Partial Index

*Myxedema. R. Hatlehol.—p. 701.
Treatment of Anemia. G. Larsen.—p. 706.
*Spontaneous Pneumothorax. C. M. Sinding-Larsen.—p. 709.
Corticotropin (ACTH) and Cortisone. C. Müller.—p. 710.
Paroxysmal Tachycardia. A. Aubert.—p. 715.
Primary Atypical Pneumonia. V. Gaustad.—p. 723.
Cancer of Pancreas. H. S. Mathisen.—p. 728.
*Bacterial Endocarditis. S. Aarseth.—p. 733.

**Myxedema.**—Hatlehol discusses myxedema because the results of treatment are good, provided irreversible changes have not occurred, and because the disorder is often overlooked. It occurs oftenest in women over 40; in only 12 of Hatlehol's 59 cases did it occur in men. Charcot's term "cachexie pachydermique" describes the most important manifestations of fatigue and skin changes. In fully developed cases the characteristic appearance permits a probable diagnosis. Determination of the basal metabolic rate is of greatest practical value. Mental and physical relaxation of the patient during the examinations is important. In most of the author's cases the metabolic rates were from -75% to -61 to -62%. In doubtful cases determination of the plasma cholesterol level may be decisive. It is as a rule increased from the normal 150 to 225 mg. per 100 cc. to values as high as 400 to 500 mg. per 100 cc. The hypercholesterolemia disappears rapidly during treatment with thyroxin. An abnormal extracellular accumulation of protein, salts, and water in the tissues in myxedema gives the skin its peculiar consistency. The increased protein accumulation is eliminated on administration of thyroxin. The frequency with which the erroneous diagnoses of anemia and nephritis with edema are made reveal that there are diagnostic pitfalls. Anemia in myxedema is frequent, usually of a moderate hypochromic type; it is one of the last symptoms to disappear on treatment. There is no proteinuria in myxedema. In some cases moderate hypertension occurs. As a rule the cause of the disease cannot be established. It occurs predominantly in women; frequent births seem to be a predisposing factor. The prognosis is good when the disease is recognized in time. With thyroxin treatment the patient may live long. The aim of the treatment is to relieve the symptoms of the disease with the smallest possible dose of medication, which is determined by the basal metabolic rate, the clinical symptoms, and the patient's subjective well being. Until recently organic preparations produced from animal glands were used. Today a synthetic preparation of constant composition and effect is available which allows dosage according to weight. Treatment of myxedema starts with a daily dose of 1 mg. The effect appears after a couple of weeks. Close supervision must be exercised to avoid overdosage and resulting handicaps. The maintenance dosage, with which the patient must continue for the rest of his life, is in most cases 0.1 to 0.2 mg. daily.

**Spontaneous Pneumothorax.**—A number of cases of so-called spontaneous pneumothorax are in reality traumatic. Traumatic pneumothorax is frequently a complication of such interventions as thoracentesis, which can cause pulmonary lesions. There is the possibility of indirect traumatic pneumothorax when mediastinal emphysema occurs during such operations as tracheotomy. Some cases of so-called pneumothorax simplex must be designated as symptomatic because of primary disease in lungs or pleura. For diagnosis soft roentgenograms are recommended. In cases of long duration thoracoscopy should be carried out; it should perhaps be done *in most cases. Spontaneous* pneumothorax occurs oftenest between the ages of 20 and 30. Men are affected oftener than women. Patients with spontaneous pneumothorax should not be transported by airplane.

**Bacterial Endocarditis.**—*In* acute bacterial endocarditis, usually due to pyogenic bacteria from localized infection, the course usually runs less than six weeks, while in subacute bacterial endocarditis, as a rule due to bacteria of relatively low virulence, usually nonhemolytic green streptococci, it is generally more protracted. In the medical departments of Ullevål Hospital an average of 10 cases of bacterial endocarditis are treated annually. Most cases are subacute. Subacute bacterial endocarditis occurs mainly between the ages of 20 and 40, but no age is exempt. It almost always originates on the basis of earlier valvular defect or congenital heart defect and is marked by cardiac symptoms, general symptoms *due to toxemia,* and vascular symptoms due to embolic processes. Valvular defect, fever and petechiae with yellow-white centers or Osler nodes as a *rule point to* subacute bacterial endocarditis. The diagnosis is confirmed by findings of a palpable spleen, drumstick fingers, *anemia, and* microscopic hematuria. Positive blood culture or an occluding embolus in a large artery is conclusive evidence. A patient with heart defect and unexplained fever of a week's duration or more should be hospitalized immediately on suspicion of bacterial endocarditis. The main agent in treatment is penicillin. It has been shown that most cases of bacterial endocarditis can be controlled by administration of 500,000 units penicillin daily for at least a month, but according to later study doses of 2,000,000 units daily for from four to six weeks gives considerably better results. With highly resistant bacteria the daily dose must be increased to 10 to *20 million units.* Since the bacteria may develop increased resistance to penicillin during treatment, *the daily dose must be set high enough from the start.* In the cases described here no patient survived who received less than 500,000 units penicillin daily; 13 out of 16 patients given 1,000,000 units daily are living. Determination of bacterial resistance has become increasingly important because of the availability of potent antibiotics (streptomycin, aureomycin, chloramphenicol, and terramycin) that can be effective when penicillin fails or can be used with penicillin. Supportive symptomatic treatment is often helpful. Blood transfusions may be of great value. For prophylaxis patients with heart defect may be given penicillin before and after tooth extraction, tonsillectomy, and similar procedures. Most important in determining the prognosis are the patient's age and general condition, complicating diseases, location of the valvular defect, *the nature of the* in- ection, duration of the disorder before *the* start of treatment, d the intensity and duration of the treatment. With proper eatment recovery can be expected in about two-thirds of the cases. After cessation of treatment the patient must be observed for recurrences, which usually occur within two months but may *occur later.*

## Tubercle, London

### 32:231-254 (Nov.) 1951

Viability and Virulence of Old Cultures of Tubercle Bacilli. (Studies on 30-Year-Old Broth Cultures Maintained at 37 C.). H. J. Corper and M. L. Cohn.—p. 232.
Atelectasis of Healthy Lobe in Pneumothorax Therapy. E. V. Hess. —p. 237.
Account of Treatment of Tuberculous Cavities by Thoracoplasty with Special Reference to Use of Postural Reduction as Pre-Operative Measure. M. D. Deshmukh and E. H. Williams.—p. 240.
X-Ray Sifting of Chest Clinic Patients. F. C. S. Bradbury, W. Fettes and J. N. Parker.—p. 246.
Use of Synthetic Ester of Oleic Acid ("Tween 80") in Preparation of Freeze-Dried BCG Vaccines—Preliminary Report. E. A. North and W. C. Newman.—p. 251.

### 32:255-280 (Dec.) 1951

Domiciliary Treatment of Pulmonary Tuberculosis with Combined Chemotherapy. D. L. Pugh, E. R. Jones and W. J. Martin.—p. 256.
B. 53 and B. 83. M. L. Conalty.—p. 263.
Trial of Thiosemicarbazones in Treatment of Tuberculosis. M. M. Nagley. —p. 266.
Post-Tuberculous Bronchiectasis in Children. J. H. Hutchison.—p. 271.

## Zeitschr. f. d. ges. experim. Med., Heidelberg

### 118:1-108 (No. 1) 1951. Partial Index

*Metabolic Effects of Treatment with Corticotropin (ACTH). G. Lohmeyer.—p. 5.
Influence of Antihistamines and Histamine on Mucopolysaccharase. H. Wohnlich.—p. 24.
Quanitative Investigations with Ultrasonics on Microorganisms. G. Veltman.—p. 55.
Tolerance for Frequently Repeated Small Doses of Salicylic Acid. A. Herz and B. Stampfl.—p. 76.
Oxygen Dissociation Curve in Sulfhemoglobinemia and Methemoglobinemia. C. Maier, A. Bühlmann and M. Hotz.—p. 105.

***Metabolic Effect of Corticotropin.***—Lohmeyer studied metabolic changes in eight patients who had been treated with corticotropin. Three patients *with chronic polyarthritis* received tota doses of less than 350 mg. and most of the daily doses wer less than 50 mg. Three other patients received moderate dose of an average of 100 mg. daily. The two remaining patients received comparatively large doses, often around 200 mg. dail Depending on the corticotropin dosage, the excretion of 1 ketosteroids in the urine was increased, indicating stimulatio *of the adrenal* cortex. The urinary elimination of nitrogen als increased, and this produced a negative nitrogen balance i some cases. The uric acid *elimination in the urine increase* without a noticeable decrease in the uric acid content of th serum. The uric acid-creatinine quotient revealed no regulari in behavior and thus cannot serve as a *reliable indicator* of i creased activity of the adrenal cortex. The eosinophil count the peripheral blood always decreased noticeably, and thus mac possible a reliable control of the hormonal action. The carb hydrate *metabolism was only moderately* altered. The bloc sugar values remained within normal limits. Only double tole ance tests with dextrose revealed a reduced carbohydrate tole ance in a few instances. The erythrocyte *sedimentation* spee decreased noticeably. Water retention produced a temporai weight increase. To avoid undesirable metabolic reactions, th author recommends a low maintenance dose following a hig initial dosage of *short duration.*

## Zeitschrift für Kinderheilkunde, Heidelberg

### 70:213-322 (No. 3) 1951. Partial Index

"Carbohydrate Hunger" and Its Prevention During Dietetic Treatment Infants. H. G. Krainick and H. Richarz.—p. 253.
*Comparison of Sabin-Feldman Dye Test for Toxoplasmosis and Tox plasmin Skin Test. O. Vivell.—p. 271.
Incidence of Rickets. H. Herpertz.—p. 282.
Reaction of Serum Protein Bodies in Abdominal Typhoid and Parat roid. M. Herten.—p. 300.
Clinical Aspects of Progressive Lipodystrophy. H. Sandmann.—p. 308.

**Sabin-Feldman Dye Test and Toxoplasmin Skin Test.**—Vive compared the Sabin-Feldman dye test for toxoplasmosis with toxoplasmin skin test in 129 adults and children. The toxopla min used as the skin antigen was prepared from peritone exudate of mice. The reactions to the two tests agreed. The persons who had a negative reaction to the dye test also had negative reaction to the skin test. Thirty-eight persons wi titer values of 1:12 and higher also had positive skin reactior Of 16 persons with titers of 1:2 in the Sabin-Feldman test, had a definitely positive skin test. Of 80 infants who were teste none had a positive skin test, although some of the very you infants frequently *had titers* of various levels in the Sabin-Fel man dye test; it is assumed that this can be explained by di *placental transmission* of passive antibodies. Thus agreement dye test results and toxoplasmin reaction applies only to acti formation of antibodies. No infant with proved toxoplasmo was available to verify this. The skin test is carried out like a t for a Mendel-Mantoux reaction. An extract prepared from t spleen of healthy mice is imployed for the control test. *The* i action is read after 48 hours, a palpable infiltration with si rounding erythema indicating a positive outcome. *The surprisi* conformity of results of the two tests verifies the specificity the Sabin-Feldman dye test. Evaluation of the titers *of* t Sabin-Feldman test suggests that any titer accompanied by positive skin test can be regarded as positive. The skin test c serve as a detection test to ascertain the incidence of toxopl mosis in a population, being reliable in all except infants. T Sabin-Feldman test should be used chiefly for quantitative ev uation and for the analysis of antibody formation.

# BOOK REVIEWS

**Space Medicine: The Human Factor in Flights Beyond the Earth.** Edited by John P. Marbarger. Cloth. $3. Pp. 83, with 18 illustrations. University of Illinois Press, Urbana, Ill., 1951.

This book is a collection of the papers discussed at the Second Symposium on Space Medicine, by experts in this field and allied fields. After an introduction by Dr. A. C. Ivy, of the University of Illinois, Major General Harry G. Armstrong, the Surgeon General, USAF, reviews space medicine historically and discusses its potentialities.

Four chapters were written by the following scientists from the USAF School of Aviation Medicine, Randolph Air Force Base, Texas: Colonel Paul A. Campbell, director of research, and Drs. Hubertus Strughold, Heinz Haber, and Konrad Buettner from the department of space medicine. The remaining chapter was written by rocket expert Wernher von Braun of the ordnance research and development office, Redstone Arsenal, Huntsville, Ala. The subjects are well chosen and technical enough to satisfy the scientist yet so clearly discussed that the layman will have little difficulty understanding the text.

Starting with basic physics, von Braun brings the reader to an understanding of the principles of rocket propulsion. He discusses single stage and triple stage rockets and a space satellite (platform). He also describes the problems of trajectory and outlines the methods by which these problems can be solved.

Dr. Strughold limits his discussion to the problems of temperature and oxygen supply. Only in the narrow band around 60 C can life, as we know it, exist. Aside from the Earth, Dr. Strughold concludes, only the planets Mars and possibly Venus possess the temperature prerequisite for life.

Dr. Buettner, a climatologist, discusses problems of heating and cooling the space ship to maintain a climate comparable to that of the subject's home planet. Dr. Strughold shows that, from the standpoint of oxygen pressures, no human or animal life, except the lowest forms, can exist on Mars, and the existence of lower animals that have little need for oxygen is uncertain. There may be forms of lichen on Mars; these forms might, by storing self-produced oxygen, have enough oxygen to maintain life. Oxygen presents a problem not only on other planets but also in space. Dr. Buettner discusses "canned air" a breathing mixture that would be carried by flyers in sufficient quantities for two trips and time spent on the planet. Dr. Haber clearly explains the problems of gravitational fields and zero gravity. With proper conditions, zero gravity can be realized without leaving the earth's gravitational field. Once the space ship leaves the earth's atmosphere, it becomes an astronomical body like the other planets and subject to the same influences.

Orientation of the person to space is influenced by the increased gravity on take off and deceleration and the zero gravity of sustained flight. Colonel Campbell gives the following description of the triad that permits orientation. "The vestibular apparatus is gravity-oriented and will not give a true response in situations of unusual gravity, and therefore would not be useful. The visual component will not be affected by gravity and will be the useful factor for orientation. Orientation depends on the cortex; consequently cortical anoxia or cortical influences produced by acceleration or deceleration may be a critical factor."

Dr. Buettner's "ideal climate" is also influenced by this zero gravity state. Expired air and body heat are carried away by convection that depends on the differential weights of the air masses. In a weightless situation, convection does not occur, and the passenger would soon be surrounded by a warm mass of air, rich in carbon dioxide and water and quickly depleted of oxygen. This effect could be partially overcome by wearing oxygen masks and keeping fans to maintain circulation. As soon as the space traveler leaves the protection of the earth's atmosphere, he will encounter radiation. The possible radiations, their probable effects, and methods of protection are described.

In summation, this book is a primer of space flight that will enable many people to realize that interplanetary travel is no longer in the realm of fantasy. Although all material is not covered exhaustively, the book does discuss most of the problems confronting space scientists. Medicine is only one of the many fields that must contribute to the knowledge required before the first space flight can be made. Coordination between the various fields of science is necessary for the success of this work.

**Homicide Investigation: Practical Information for Coroners, Police Officers, and Other Investigators.** By LeMoyne Snyder. With chapters by Harold Mulbar, Captain, Michigan State Police, Lansing, Charles M. Wilson, Superintendent, Wisconsin State Crime Laboratory, Madison, and C. W. Muehlberger, Director, Michigan Crime Detection Laboratory, Madison. Sixth printing, revised. Cloth. $7.50. Pp. 359, with 146 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

The preface to the sixth revision of this book states that its purpose is to make available tested practical plans of procedure in investigating cases of violent death. "The trained medical examiner," the preface continues, "may find little of interest in these pages but it is hoped that this synopsis of factual information will be of practical use to men without scientific training whose duty requires that they shall investigate what appears to be a violent death."

The book, simply and without technical language, discusses general considerations of homicide investigations and the more common types of violent deaths, such as stabbing, poisoning, drowning, and direct violence. Three chapters, "The Investigation of Highway Accidents," "Preservation and Transportation of Firearm Evidence," and "Techniques of Criminal Investigation" are contributions by authorities in these respective fields. The book arouses a desire to improve the quality of homicide investigations and a realization that trained personnel are needed to determine the many technical questions that arise during the course of such investigations. One purpose of the book is to impress upon the investigator the necessity of observing and reporting ordinary facts and reserving less ordinary evidence for the appraisal of the expert. The text of the book is well illustrated by photographs that are exceptionally clear, well reproduced, and descriptive without being sensational. In this edition, 70 pages are added, over 100 pages are rewritten, and 42 new illustrations appear.

**The Prudential: A Story of Human Security.** By Earl Chapin May and Will Oursler. Cloth. $5. Pp. 372, with illustrations by E. Stanley Turnbull. Doubleday & Company, Inc., Garden City, New York, 1950.

The story of the Prudential Insurance Company of America is perhaps the story of America. Started in 1875 as The Prudential Friendly Society to provide weekly premium insurance for the laboring classes, it is today one of the leading insurance and financial institutions in the United States. This book was written in commemoration of the seventy-fifth anniversary of the founding of the company. As the authors state "Insurance is a business of people, and this is a history primarily of people and their quest for security with freedom and self-respect." To those who feel that large financial institutions are heartless corporations, this book will be a pleasant surprise. Among items of interest is the fact that the company acted promptly to save thousands of homes and farms from foreclosure during and immediately following the depression.

Although two other men preceded him as president, John Fairfield Dryden was the guiding spirit of the company until his death in 1911. His creed was "Social institutions, like political institutions, can endure only if there is economic justification for their existence, and if they prove their social utility by successful adaptation and re-adaptation to the ever-changing conditions and circumstances of political and social life." Al-

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The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

though this book is a history of a technical insurance organization, it is written in a nontechnical style. Of special interest to the medical profession is the fact that Dr. Leslie D. Ward played an important part in the founding of the company and in its early management.

**Medizinische Poliklinik: Vorlesungen über innere Medizin.** Von Dr. Erwin Schliephake. Cloth. 32 marks. Pp. 620, with 166 illustrations. Gustav Fischer, Villengang 2, Jena 15b, Germany, 1951.

This work by a well-known German internist, who is specially trained in physiology and pathology, is not, as he says in a preliminary statement, a substitute for a manual on the art of medicine, nor is it a systematic treatise on internal medicine. It is based on material drawn from his hospital and office practice, and its major emphasis is on the actions of "the great correlation systems": the endocrine, circulatory, and nervous systems. The author also stresses the influence of constitution and environment on the clinical picture. He is mainly concerned with common rather than rare diseases, although he discusses many of the latter. He includes little information concerning the details of technical tests, unless they are of very recent origin, but he notes their diagnostic value. He emphasizes the importance of diagnosis, not as an end in itself, but as a guide to treatment. He points out the necessity of care in taking the patient's history and in the examination, and of the use of some of the commoner technical aids: the clinical laboratory, roentgenograms, and electrocardiograms. In discussing treatment he emphasizes methods, particularly those of physical therapy, that can be used in the physician's office. He mentions the necessity, in making a diagnosis, of considering every case a problem, a psychological factor often overlooked, and the importance of treating the patient rather than the disease.

The text contains chapters on constitution, endocrinology, diseases of metabolism, allergy, rheumatic and arthritic affections, common infectious diseases, maladies of the respiratory apparatus, blood-forming organs, the digestive tract (including the biliary system, the liver, and the pancreas), the peritoneum, the spleen, some worm infestations, the circulatory system, the kidneys, the urinary passages, and the nervous system. The book is written in an attractive style; it has a good index, but no bibliographies. It is printed in clear type on paper of good quality and is attractively bound. The illustrations, with a few exceptions, are excellent. They consist of diagrams, photographs of patients, electrocardiographic tracings, many excellent reproductions of roentgenograms, and one instructive colored plate showing the genesis of foetal and adult blood cells. The discussions obviously reflect the author's own opinions. The book is hardly comparable to a formal text, but is really a collection of clinical reports followed by discussions that point out important factors in the diagnosis and treatment of the diseases the author's patients had. The work contains the considered opinions of a clinician of experience and mature judgment.

**Vitamin Methods. Volume II.** Edited by Dr. Paul György. Cloth. $14.50. Pp. 740, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1951.

This volume of an important reference work on vitamin methods consists of five chapters by various authors and a supplement to volume 1 of three brief chapters. This supplement was deemed necessary because of important developments in vitamin assay that have occurred since the appearance of volume 1 in 1950. The contributors are well-known in their respective fields, and the editor, who is an associate author of two chapters, has made many important contributions to our knowledge of vitamins during the past twenty years. The book is, therefore, entitled to prominent rank. It is something more than a compilation of important methods used in vitamin research. It contains adequate discussion of various methods that have been used and difficulties that may be encountered in such research, and will serve as a useful guide to anyone interested in vitamin determinations. It is more extensive in its treatment than other books on the same subject and is fully documented with references. The first chapter indicates the background of knowledge that must be acquired for properly conducting animal experiments. The sections that deal with vitamin standards and the obligation of the experimenter to provide not only necessary but also humane care for his animals are worthy of special comment, because these subjects frequently do not receive sufficient emphasis. One chapter that is of particular interest deals with laboratory diagnosis of human vitamin deficiencies. It gives a good summary of the important information on this subject.

The book contains too much discussion of statistical considerations. One chapter of 165 pages deals with this subject alone, and another chapter on vitamin assays that is 236 pages long is devoted in a large part to the design of experiments and interpretation of results from the statistical approach. With few exceptions, the illustrations in the book relate to statistics. The chapter entitled "Clinical Signs of Malnutrition" seems out of place in this volume. It is difficult to understand why the author has tabulated 63 "findings" or conditions as clinical signs of malnutrition when, in many cases, the suggested deficiency or syndrome is listed as "unknown" or as caloric, protein, or mineral. One-fourth of this chapter is concerned with height and weight measurements and their significance, and the remainder is devoted to a description of pathological conditions that can be recognized by the physician, their significance, and the use of vitamins in their treatment. This chapter may be of particular interest to the physician, but the subject matter is hardly suited to a book bearing the title "Vitamin Methods." In spite of these criticisms, the book is a storehouse of information and will be useful particularly to the vitamin chemist.

**Chronic Disease and Psychological Invalidism: A Psychosomatic Study.** By Jurgen Ruesch, M.D. In collaboration with Robert E. Harris, Ph.D. and others. Foreword by Karl M. Bowman, M.D. [Originally published in series, Psychosomatic Medicine Monographs, 1946.] Paper. $3.50. Pp. 191 with 11 illustrations. University of California Press, Berkeley; Cambridge University Press, Bentley House, 200 Euston Rd., London, N.W.1, 1951

This is an excellent monograph compiled by Dr. Ruesch and a well-qualified group of associates from the division of psychiatry of the University of California Medical School, with the assistance of colleagues in other departments. Their studies were conducted largely at the Langley Porter Clinic. The main objective of the authors is to bring the patient into proper focus in relation to his disease. Their approach to the interpretation of symptoms associated with chronic or recurrent illness and extending into convalescence and rehabilitation is original and effective. Emphasis is given to personality disturbances and the environment of the patient in explanation of symptoms ordinarily attributed to his disease. By appropriate and practical methods social, economic, psychological, and cultural factors are investigated, and their influence in the recovery of the patient is appraised. The authors arrive at the interesting conclusions that chronic disease is a psychological problem, that convalescence and rehabilitation are dependent on the patient's adjustment to his problem, and that, fundamentally, such conditions must be considered of sociopsychological significance.

The monograph is replete with interesting tables and case reports. A clear and concise summary is found at the end of each chapter, and at the end of the monograph two interesting appendixes appear: appendix A, formulating the most frequent situational conflicts, and appendix B, summarizing the sociopsychological aspects of patients with chronic disease and psychological invalidism. Fortunately, the bibliography is not long but it is comprehensive and well selected. This monograph is strongly recommended to the practitioner of medicine as wel as to the specialist in psychiatry and allied fields.

**Occupational Handicrafts.** [Reprint of Dryad leaflets.] Cloth. $6.95 Various pagination. Chas. A. Bennett Co., Inc., 237 N. Monroe St. Peoria 3, Ill.; Dryad Handicrafts, Leicester, England, [n.d.].

This book will be of interest chiefly to the occupationa therapist. It is a bound volume of 25 booklets entitled "Dryad Leaflets." These contain directions for the construction of the items usually found in handicraft manuals used by occupationa therapists; for example, leaflets are included that describe loom weaving, linoleum cutting and printing, doll making, stencilling and chair caning. It has value as a reference book for persons interested in a variety of handicraft projects. The book is wel illustrated but presents no new ideas.

**A Synopsis of Anæsthesia.** By J. Alfred Lee, M.R.C.S., L.R.C.P., M.M.S.A., Consultant Anæsthetist to General Hospital, Southend. Second edition. Cloth. $3.50. Pp. 354, with illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; [John Wright & Sons, Ltd., 42-44 Triangle West, Bristol 8], 1950.

The author has recognized the many changes that have taken place in anesthetic practice and teaching since the first edition of this book was published. He has added fresh information in the historical section on the physiology of circulation, intravenous use of procaine, stellate ganglion block, vagus block, therapeutic block, electrical anesthesia, intra-arterial injection of thiopental sodium (thiopentone) and its dangers, blood transfusion, dextran, hyaluronidase, anesthesia in surgery of the heart, and obstetric use of trilene (trichloroethylene). The text is brought up-to-date with regard to curare and mentions material from a number of texts by other authors that have been published recently. The author has attempted to compress into brief form the essence of the various subjects with which one must be familiar in order to prepare for part 1 of the examination for the diploma in anesthetics in England, and he has provided material that will be useful to those who take part 2 of the examination.

Chapter 2 is outstanding. It gives as briefly as possible necessary anatomic information, together with the laws of gases and the physiology of the human being. All of the general anesthetics are dealt with briefly but adequately, as are the gases used in association with anesthesia, particularly oxygen and carbon dioxide. The chapter on endotracheal anesthesia is excellent. The chapters on spinal anesthesia and local and regional anesthesia have been written positively and well. Shock occurring before and during anesthesia is discussed. The use of anesthetics in thoracic surgery and obstetrics is covered. An excellent appendix gives much information that is useful to the anesthetist. The book is well indexed. One rarely finds so much good information in such a small book at such a reasonable price. All clinical anesthesiologists would profit by having this book at hand.

**Thyroid Function and Its Possible Role in Vascular Degeneration.** By William B. Kountz, M.D., Assistant Professor of Clinical Medicine, Washington University School of Medicine, St. Louis. Publication number 108, American Lecture Series, monograph in American Lectures in Circulation. Edited by Irvine H. Page, M.D., and A. C. Corcoran, M.D. Cloth. $2.25. Pp. 62, with 10 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, 1951.

In this monograph the author presents evidence that hypofunction of the thyroid gland produces a degenerative change in the walls of the large blood vessels that may render them susceptible to the development of arteriosclerosis, particularly of the medial type. No one would take issue with this generally accepted point of view; however, the implication that merely temporary thyroid insufficiency may lay the foundation for subsequent degenerative vascular disease is an assumption that seems unwarranted. This short monograph might well have appeared in one of the numerous journals available for the publication of review articles. The justification for its appearance in the expensive format of a monograph is not apparent.

**The Education of Man: Aphorisms.** By Heinrich Pestalozzi. With introduction by William H. Kilpatrick. [Translated from German original by Heinz and Ruth Norden.] Cloth. $2.75. Pp. 93. Philosophical Library, Inc., 15 E. 40th St., New York 16, 1951.

This is a collection of pithy sayings and aphorisms for the serious reader who is interested in some of the underlying basic principles of the philosophy of education of Pestalozzi. The 10 chapters cover such subjects as mankind and humanity, the individual, home and hearth, the education of man, man among men, poverty, the sacred, justice and liberty, truth and wisdom, nature, the world, and God. Typical of some of the collected sayings are the following quotes: "He who bears the interest of humanity in his breast, that man is blessed." "Sooner or later, but of a certainty in the end, Nature will take her toll of what men do against her." "The salvation of the world is a civilized humanity." "Not art, not books, but life itself is the true basis of teaching and education." One does not need to be of Swiss descent to be interested in some of the aphorisms of Pestalozzi.

**Syphilis.** By Richard S. Weiss, M.D., Dermatologist-in-Chief, Barnard Free Skin and Cancer Hospital, St. Louis, and Herbert L. Joseph, M.D., Consultant in Dermatology and Syphilology, U. S. Air Force Base, Travis Air Force Base, California. Cloth. $5. Pp. 180, with 42 illustrations. Thos. Nelson & Sons, 19 E. 47th St., New York 17; Parkside Works, Dalkeith Rd., Edinburgh 9, 1949; 1951.

This is a compact textbook and manual of syphilology designed to give the general practitioner, general medical officer, or medical student a basic knowledge of the clinical and laboratory aspects of syphilis and a summary of the many recent developments in this field. Since most patients with syphilis are seen first by the general practitioner rather than by the specialist and since much syphilotherapy is now administered by private practitioners rather than by public clinics, there is a real need for this type of presentation. The chapters on diagnosis and therapy are concise and practical and are supplemented by extensive bibliographies. The sections on therapy deal primarily with penicillin, although a brief discussion on metal chemotherapy and iodides is included to permit evaluation of previous therapy or consideration of supplementary or alternative treatment. The authors outline currently accepted schedules of penicillin therapy, but they caution that treatment with a few injections of penicillin may not cure all forms of syphilis permanently and that prolonged post-treatment follow-up is essential. The format of the book is attractive and the type readable, although some of the clinical photographs lack clarity and detail. This volume provides aids to orientation in a rapidly changing field.

**An Atlas of Normal Radiographic Anatomy.** By Isadore Meschan, M.A., M.D., Professor and Head of Department of Radiology, University of Arkansas School of Medicine, Little Rock. With assistance of R.M.F. Farrer-Meschan, M.B., B.S. Cloth. $15. Pp. 593, with 1044 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London, W.C.2, 1951.

This profusely illustrated textbook of diagnostic radiology is intended, according to the authors, for students of anatomy, radiology, and medicine, and for physicians who are not radiologists. It is a sound book and reflects the expenditure of much hard work, but it would be even better if it were narrower in scope. The authors sense this fact and say in their preface that any one of the six aspects of their work might well have been given all of their time and energy. The title is poorly chosen. The book is not actually an atlas of anatomy but rather is a textbook of radiology that contains more anatomic information than is needed in such a textbook and vastly less than is required for an authentic atlas. X-ray technicians are not listed by the authors as potential readers of the book, and yet a great deal of space is devoted to the positioning of patients, which is a matter of concern to technicians but not to students of anatomy or radiology. However, the faults of too much detail in some areas and too little in others are compensated, at least in part, by the book's great breadth of scope, and few matters of interest to student radiologists have been neglected entirely.

**Toward Manhood.** By Herman N. Bundesen, M.D. Cloth. $2.95. Pp. 175. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5, 1951.

Many books have been written to help the younger generation understand problems related to sex. As boys and young men pass through the adolescent years, sex problems raise interest and sometimes difficulties that are usually caused by lack of understanding. One of the best books that has been prepared for boys and young men is "Toward Manhood," which offers a frank but not stuffy discussion of such subjects as how human beings reproduce, the male reproduction system, growing up physically, proper relations between boys and girls, the need for control of sex, and venereal disease. The 15 chapters in this book contain information which, because of its informal but personal style, can be recommended for boys and young men. The author is well known for his interest in health education and the prevention of disease. His forthright reviews, which have become familiar to many over the years, help set the pace for his latest book. The type is pleasing to the eye, and the

ly good quality to permit easy and fast r

**Verletzungen der Lungen und des Brustkorbes: Frühverlauf und Spätfolgen mit besonderer Berücksichtigung der Lungentuberkulose. Kritische Beobachtungen über 3 Jahrzehnte an fast 4000 Verletzten des Weltkrieges 1914/1918.** Von Dr. Walter Steffens. Neue Folge Heft 44, Arbeit und Gesundheit: *Sozialmedizinische Schriftenreihe* aus dem Gebiete des Bundesministeriums für Arbeit. Herausgegeben von Professor Dr. phil. et med. M. Bauer und Dr. med. F. Paetzold. Paper. 10.90 *marks. Pp.* 319, *with* 111 illustrations. Georg Thieme, Diemershaldenstrasse 47, (14a) Stuttgart O; agents for U. S. A., Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1951.

*This* book marks the 44th monograph in the social medicine series published by the German Ministry of Labor since 1925; number 43 was published in 1944, and this publication, therefore, represents a postwar resumption of scientific contributions. This volume is concerned with injuries of the lungs and chest. It is described as "a contribution to the knowledge of the *health* and social fate of chest and lung casualties of the world war of *1914 to 1918" and constitutes an evaluation of the late history* and parenthood status of a group of soldiers who are, for the most part, in their fifties or sixties and, in a few instances, in their late forties. It begins with a discussion of the frequency of various types of injuries and of the weapons by which these were inflicted. The patients with chest and lung injuries are grouped and studied under the general headings determined by their *early histories, such as emphysema, bloody cough, hemothorax,* pneumothorax, empyema, and various lung symptoms, and by *the character and duration of their convalescence. The* late sequelae, including impairment of function leading to disabilities, various types of pathology typical of long-standing chest injuries, tuberculosis, and complications involving the heart, are discussed. The treatise is thorough, well illustrated, and extensively documented.

**The Normal Cerebral Angiogram.** By Arthur Ecker, M.D., Ph.D. Cloth. $6.50. Pp. 190, with 140 illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, 1951.

This is a monograph on the subject of cerebral angiography written by a neurological surgeon who has had extensive experience with this relatively new diagnostic method. It is intended to serve as a manual for neurologists, neurosurgeons, and neuroradiologists. The monograph is divided into two parts. Part 1 deals with technique and gives detailed instructions for preparing *patients, injecting the dye, and making the films.* The technique is clearly presented, with a thorough discussion of the difficulties involved and adverse side-effects. *It is regrettable that* the exact incidence of the latter is not given. Part 2 discusses arterial supply and venous drainage of the central nervous system as revealed by angiography. The variations in normal appearance of the major intracranial vessels and their branches re discussed and are illustrated by appropriate films taken in everal different projections.

Most of the illustrations, are excellent *reproductions* of roentgenograms. These are well chosen and show clearly the various features of the vascular pattern within the brain. A short bibliography of the more important publications on the subject and a good index are included. The subject matter is well covered by *the author*. He has succeeded in producing a manual that should be in the hands of all specialists who treat neurological patients, as well as those who are called upon to *perform* cerebral angiography or to interpret roentgenograms made in this procedure.

**Pathological Firesetting (Pyromania).** By Nolan D. C. Lewis and Helen Yarnell. *Nervous and Mental* Disease Monographs [no. 82]. Cloth. $10. Pp. 437. Nervous and Mental Disease Monographs, 70 Pine St., New York 5, 1951.

This monograph reviews the universal symbolism of fire, the medicolegal history of pyromania, and the current psychiatric knowledge of the mental and emotional aspects of pathological fire setting. The dynamic psychiatric viewpoint presented is that fire, being *an excellent means* of destruction, is well suited to carrying out aggressive tendencies, venting hatred, and discharging other suppressed emotions. *It is thought that this* particular medium for emotional discharge is chosen by fire setters because they obtain the most satisfaction in the *achievement of* spectacular effects that do not require the usual amount of effort necessary to produce an equivalent result. In this sense, the pyromaniac once again has the magic power of a child to create and destroy whole worlds, as he was able to do in his childhood play. The satisfaction derived from the commission of an act that is symbolic and substitutive is only temporary, and the act requires repetition, inasmuch as the frustrated love, jealousy, rivalry, sexual impotence, perversion, frigidity or fetish at the core of the personality remain untouched by the *event. Fire setters* are considered to be *motivated by reaction against* the social order, desire for vengeance against an employer, desire for revenge fo *injured vanity, jealousy,* desire to perform heroic acts in subse quent fire fighting, or because of conversion of the sexual impuls into a need for substitutive excitement. The authors comment o the theoretical aspects of the problem of legal responsibility an on the medical and legal disposition of such persons.

**Federal Food, Drug, and Cosmetic Act: Judicial and Administrati Record 1949-1950.** By Vincent A. Kleinfeld *and Charles Wesley Dun* Food Law Institute Series. Cloth. $10.25. Pp. 543. Commerce Cleari House, Inc., 214 N. Michigan Ave., Chicago 1, 1951.

Although this book may be of limited interest to the avera physician, it offers, for many members of the medical profe sion, a compilation of material, written in an easily understo manner, which is not readily available elsewhere. This is the se ond research book in the food law institute series; the first w published in February, 1951. The 1951 book is a compilation the official annual reports on the *original 1906* Federal Fo and Drugs Act and the succeeding 1938 Federal Food, Dru *and Cosmetic Act, from the first report in 1907 through t* last report in 1949. This book contains the administrative a *judicial record of the Federal Food, Drug, and Cosmetic A* from *May, 1949,* to *January, 1951,* as well as other *helpful* da *relating* to this *information*. Both authors are well known, t former for his work with the criminal division of the Unit States Department of Justice, the latter for his long years interest and counseling in the food and drug fields. This compil tion is a significant contribution for those who have need f *such a work. The presentation,* the *type,* the *paper,* and the fo mat are in keeping with the nature of this book.

**The Family Scrapbook.** By Ernest G. Osborne. Cloth. $3.95. Pp. 4 with illustrations. Association Press, National Council of Y. M. C. A., 2 Broadway, New York 7, 1951.

Much sound, practical advice for daily living is provided this assembly of *single-page discussions of family situatio* Described by the author as a "big album" addressed to paren it undoubtedly would be of interest also to teachers and othe who work with children. Because no topic is given more than o page for consideration, some of the implicit recommendatio may, at first, give the impression of being dismissed too casual although the reader will find this impression fades as he rea farther. A wide range of subjects is presented, covering a peri beginning with the baby's arrival and continuing well into school-age years. *Considerable* emphasis is placed on adju ments that are required among all members of the family. Ea article is graphically *illustrated with a small sketch,* as are in vidual chapters at their beginnings. The book is easy to read, a can be opened at any point without the reader feeling a need f orientation.

***First Aid:* Surgical and Medical.** By Warren H. Cole, M.D., F.A.C. Professor and Head of Department of Surgery, University of Illin College of Medicine, Chicago, Charles B. Puestow, M.D., F.A.C.S., Cli cal Professor of Surgery, University of Illinois College of Medicine a Graduate School, Chicago, and others. Fourth edition. Cloth. $4. Pp. 4 with 94 illustrations by Carl Linden and *Tom Jones. Appleton-Centu* Crofts, Inc., 35 W. 32nd St., New York 1, 1951.

This is one of the most interesting and practical of the boo on first aid. The authors and *their contributors* are well kno and have been honored, in many instances, for contributio in their specialized fields. The *latest edition has* been modif to bring the contents of the book up-to-date. The reader can fi reference not only to the treatment of wounds *in warfare* a civilian life but also to the treatment of wounds during atom warfare. Those who wish to read a book that will aid *them* preparing for first aid activity will find this pleasingly assembl volume helpful and written with a simplicity that is refreshi

# QUERIES AND MINOR NOTES

## FEEDING HORMONES TO ANIMALS TO INCREASE SUPPLY OF MEAT

To the Editor:—*I have noted an increased number of relatively low metabolic rates in my patients. Could this increase be caused by the hormonal feedings used by the meat industry to increase meat production in their animals? Has any check been made on the effect of these hormonal feedings and injections used by the meat industry on persons consuming this meat?* *M.D., Nebraska.*

This query has been referred to two consultants, whose respective replies follow.—Ed.

Answer.—If it is true that the number of cases of relatively low metabolic rates is increasing, it seems unlikely that this could be attributed to the administration of hormones to meat animals. With the exception of poultry, in which diethylstilbestrol treatment is being used to improve the quality of the edible carcass, the use of hormones in meat animals has been restricted to experimental purposes. No great segment of the population could have been exposed to the meat of hormone-treated animals. Some of the goitrogens, particularly thiouracil and methylthiouracil, have been used in attempts to increase fattening in meat animals. The meat of swine that were fed a ration containing 0.2% thiouracil contained about 60 ppm of the drug, but, 24 and 72 hours after the last feeding with thiouracil, the levels were 20 and 0.5 ppm, respectively. However, the use of goitrogens has many practical disadvantages in meat animal production, and they are not used in practical animal husbandry. Thyroprotein, an iodinated protein with thyroxine-like activity, is being given to dairy cattle to stimulate milk production. Extensive tests of the milk of treated cows have indicated no hormonal activity in the milk. Numerous experiments are being made by the state and federal experiment stations to determine the effects of steroid hormones on animal growth and fattening. These experiments involve chemical and biological assays of the meat; all evidence will ultimately be considered by the Food and Drug Administration of the Federal Security Agency.

Answer.—There is general agreement that the standards used for determination of basal metabolic rates are slightly too high. Most workers have found that basal metabolic rates of normal persons average nearer -5 to -10% than zero. This is, at least, a partial explanation of the apparent increase of relatively low basal metabolic rate determinations. Another factor operating to give lower readings is the fact that tests are often made in hospitals, where it is customary to give patients sedatives the night before the tests. The usual dose of barbiturates may lower the determination by 10 to 20 points. Care should be taken that patients are not given sedatives or that the influence of sedation is taken into account. Determinations should not be made on patients who are drowsy, since the standards are set for the fully awakened state. No evidence is available to indicate that hormonal treatment of animals in the meat industry has affected basal metabolic rates of persons consuming such meat products.

## MAGGOT THERAPY

To the Editor:—*Several years ago maggots were considered effective in dealing with jagged, unclean wounds. Is it still possible to obtain them?* *M.D., New York.*

Answer.—Maggot therapy for chronic osteomyelitis and other chronic suppurative conditions, including jagged, unclean wounds with surface slough, has been discontinued, and it is no longer possible to obtain maggots from any commercial service. The urea substances that were isolated and thought to be the principal factor in the efficacy of maggot therapy replaced them and were in vogue for some time.

In recent years, the accepted method for management of unclean wounds has been surgical debridement of all dead tissue, with or without general anesthesia, depending on the local wound conditions. Sodium hypochlorite solution (Dakin's solution) is effective in the cleansing in that it dissolves the finer elements of slough which cannot always be removed by gross dissection. The bacterial flora, an important element in these conditions, can be cultured and tested for antibiotic sensitivity to determine which antibiotic is most suitable for treatment. This antibiotic can be administered systemically, in order to create a suitable blood concentration in the base and periphery of the wound, and can be applied topically with excellent results. By these methods such wounds can be prepared for early skin covering with minimal fibrotic change in the contiguous tissue.

## PROGRESSIVE MYOPIA IN A CHILD

To the Editor:—*A 12-year-old girl has myopia, with vision of 20/60 in both eyes. This has progressed from 20/40 bilaterally six months ago. An oculist states that full correction offers the best chance of checking myopic progress. Please advise what conditions influence the choice of full or partial correction.* *M.D., Florida.*

Answer.—The amount of correction of myopia has no effect on the progress of the refractive error. Its only effect is optical, with resultant improvement in vision. There is no valid evidence that undercorrecting the error or prescribing bifocals is of any value. Myopia of less than 8 D. is thought to be a biologic variant and related to unknown factors of growth and tissue maturation. Many systemic and local medications have been proposed for the treatment of myopia, but valid evidence of their value is lacking. It is suggested that the patient be examined after administration of a cycloplegic and that the glass that exactly neutralizes the refractive error be prescribed. There need be no insistence on the wearing of the glass unless clear vision is preferred by the patient. Usually, examinations at yearly intervals are recommended to keep pace with the myopic increase. Generally, full correction is recommended in myopia up to errors of 15 to 16 D. With errors greater than this, the vision does not increase in proportion to the increase of the concavity of the lens; therefore, partial correction is sometimes prescribed.

## "WET STERILIZATION" OF NEEDLES

To the Editor:—*Pamphlets accompanying most biologic preparations recommend the use of a dry sterile needle. Many physicians use wet sterilization for needles. Is there any objection to this practice?* *H. H. Shuman, M.D., Springfield, Mass.*

Answer.—If "wet sterilization" involves boiling the needles in water without the use of alcohol or other chemical disinfectants, there is no serious objection to this method, if excess water is expelled to avoid dilution of the contents of multiple-dose vials. Chemical disinfection should not be substituted for heat sterilization. Chemical disinfectants such as alcohol might act as a denaturant of protein or cause deterioration of preparations that are precipitated by alum or other substances that prolong absorption and increase antigenic effect. Moisture is incompatible with oil or wax vehicles. The introduction of moisture at the time of withdrawal may disturb the stability of suspensions or may introduce some error in dosage when small doses are employed intracutaneously, as in skin test procedures. Hence, it is customary to recommend the use of dry, sterile needles and syringes to avoid the difficulties that may arise from the presence of moisture. Dry needles and syringes are also easier to identify as sterile when injections are administered to several patients at the same time.

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

## CUSHING'S SYNDROME

To THE EDITOR:—*I have a patient 43 years of age, with probable Cushing's syndrome. The signs and symptoms are fulness of the face since 1949, increased facial hair, relaxed abdomen, tendency to bruise easily, hypertension of 180/110, and marked symptoms of depression, forgetfulness, inability to concentrate, and suicidal tendencies. The 17-ketosteroid excretion is 28 mg. per 24 hours. Skull roentgenograms and visual fields are normal, and intravenous urogram and body section films of the adrenal region show no evidence of adrenal tumor. The predominant symptoms are mental, and these are progressive. I would appreciate a discussion on treatment, particularly in reference to the use of roentgen therapy of the pituitary. Are there any hormonal approaches? If roentgen therapy fails in this case, is exploration of the adrenals worth while?*

*M.D., Virginia.*

ANSWER.—The signs and symptoms described above are typical of Cushing's syndrome. In most cases, one or more of the following conditions are also present: muscular weakness, hyperglycemia, hypercholesteremia, and osteoporosis of the spine. Cushing's syndrome can arise from a variety of lesions, but the actual disturbance is the result of adrenal cortex hyperactivity. This may be due to either hyperplasia or tumors of the adrenal cortex, or it may result from stimulation by tumors of the anterior pituitary, chiefly but not always, of the basophil cells. If the pituitary is responsible, roentgen therapy will effect a significant but usually temporary regression of the disease. If the lesion is in the adrenal cortex, surgical intervention may be helpful, depending on whether it is unilateral or bilateral, or whether it is due to a neoplasm or hyperplasia. An experienced surgeon should be consulted.

In the absence of evidence pointing to the location of the primary causation, it is suggested that roentgen therapy of the pituitary be attempted. If no beneficial changes are observed, it may be necessary to explore the adrenals; however, a definite diagnosis of Cushing's syndrome must first be made. For the most part, endocrine therapy makes use of testosterone, which improves the health of the patient by reversing some of the metabolic processes; this does not alter the course of the disease. The lack of clear cut evidence that the syndrome is due to a pituitary tumor has resulted in a wide range of roentgen dosage for therapy. Many physicians advise the modest dosage of 1,000 to 2,000 r over a period of one month. If there is good evidence of a pituitary tumor causing the disturbance, the dosage may be increased to 3,000 to 5,000 r, which is strong enough to cause serious skin changes.

## ADACHE FROM ESCAPING GAS

O THE EDITOR:—*One death and several near fatalities from gas escaping because of defective connections in furnaces and water heaters were reported in the local newspapers. I saw a patient who had severe headaches of an unknown origin. A heating company that called to check the furnace informed her that the vent was improperly attached and that her house had been flooded with gas. She wonders if her headaches (they have cleared since the furnace was repaired) and those of her child could have been caused by the gas. She also wonders if the child's brain or mentality could have been damaged, although he seems normal. I understand that the heating gas used in this vicinity is of the natural variety, with an admixture of 20 to 50% of the manufactured variety. Can you help me answer this question?*

*M.D., Alabama.*

ANSWER.—Natural gas usually contains no or only minor quantities of carbon monoxide, but improper combustion could lead to carbon monoxide formation. Artificial or "booster" gas may contain a high percentage of carbon monoxide. Repeated headaches could indicate low grade carbon monoxide intoxication caused by chronic exposure. There need be no concern over mental or physical retardation in the child from this cause. The severe prolonged sequelae from carbon monoxide arise only as an aftermath of gross, acute poisoning; this has not occurred in this instance. It is known that even in victims of mild degrees of carbon monoxide asphyxiation all manner of persistent neuroses are prone to develop.

## MYOPATHY

To THE EDITOR:—*A man 20 years of age, has had myopathy (Leyden-Moebius type) for three years. He has been given injections of vitamin $B_1$ and B complex without results, but he has not been treated with vitamin $B_{12}$. At present, he is taking aminoacetic acid ("glycocoll") in doses of 5 gm. three times a day and vitamin E, in doses of 100 mg. three times a day. What other medication would you suggest?*

*La Salle Mondor, M.D., Grand' Mère, Quebec, Canada.*

ANSWER.—At present there is no specific treatment for a patient with myopathy of the Leyden-Moebius type. Occasionally, massage of the affected extensor muscles of the thighs may retard the progress of the disease. If arm and trunk muscles are involved, the condition is usually not influenced by treatment. Rabinovitch and co-workers prescribed either wheat germ oil or wheat germ oil concentrate, sometimes with the addition of tocopherols, to 151 patients with neuromuscular disorders. Some cases of muscular dystrophy improved; 5 out of 25 patients showed sufficient gain to warrant continuation of treatment. The use of the mixed tocopherols appears to be justified in the case described. Although vitamin E is a complex containing several tocopherols, wheat germ oil may contain others that are effective against human disease. Shy and McEachern found no clinical improvement in three cases of juvenile progressive muscular dystrophy treated with cortisone.

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## *HYPERTENSION IN A SALT MINER*

To THE EDITOR:—*A 45-year-old man has blood pressure readings from 190/100 to 260/130; the former reading is the end result of therapy with numerous drugs for reducing the pressure. He was 30 lb. (13.6 kg.) overweight at the beginning of therapy; now, he is 15 lb. (6.8 kg.) overweight. He has been on a 1,000 calorie a day diet, but his blood pressure and weight remain the same in spite of the administration of vasodilators and the diet. He has occasional dizzy spells and blurred vision. All other laboratory tests showed normal results. This patient is working in a salt mine from 50 to 60 hours weekly. Although he is not present when the actual blasting of salt is done, when he is there, the salt dust is thick and visible on exposed skin and clothing. Should this patient be put on a salt-free diet? How much salt does he inhale during his work, and how does this salt effect his blood pressure?*

*M.D., New York.*

ANSWER.—This patient undoubtedly inhales enough salt from his environment to nullify the possible usefulness of a low-salt diet. Unless the diet contains less than 200 mg. of sodium ion, it is not effective and, even then, it is only effective in those patients who are "sodium responders." He should lose the remaining 15 lb. of excess weight. The physician should determine the rate of progress of the vascular disease and, on this basis, decide on the therapy to be used.

## DERMATITIS IN A DRILL SHARPENER

To THE EDITOR:—*A patient with dermatitis is a drill sharpener and comes in contact with Norton No. 39C60J8VK Crystolon Rock, made by Norton Co., Worcester, Mass., Carborundum No. GC 80-111-VR made by Carborundum Co., Niagara Falls, N. Y., and Kennametal No. SW3 Silicon carbide made by Kennametal Inc., Latrobe, Pa. These grinding wheels are used for grinding tools tipped with cemented carbide composition. Are there skin sensitizers in any of these stone compositions?*

*G. F. Brockman, M.D., Greenville, Ky.*

ANSWER.—Dermatitis is not likely to arise from the type of stones mentioned, on a basis of either contact or sensitiveness. Mechanical skin damage is commonplace. Sensitizing agents are so protean that categoric denial of sensitization is scarcely ever warranted. Carborundum and allied synthetic abrasives are little suspect. In times long past some bonding agent embraced rubber compounds and vegetable resins. It is not known that use of this type of agent persists. On the other hand, every workman in his daily life comes into contact with a variety of agents far more likely to induce sensitization than synthetic stones. The pattern of lesion distribution often will suggest that exposure. If after the removal of the workman from all work exposure the dermatitis persists, obviously these abrasives become remoter etiologic factors.

## POSITIONAL VERTIGO AND NYSTAGMUS

To the Editor:—*A few weeks ago, a single woman, aged 20, began to have marked vertigo and nausea on lying down. Objects move in a clockwise direction. When she puts her head down, the vertigo lasts for a few minutes and then subsides; however, on turning her head from side to side while lying down, she again experiences vertigo, and, on arising to the erect position, the symptoms are again produced. They last from two to five minutes. While she is in the erect position, no symptoms are produced, but on putting her head back, vertigo is again experienced. Examination reveals a disassociated nystagmus on looking to the extreme right or left. On looking to the extreme right, the amplitude of nystagmus in the right eye is greater; on looking to the left, the amplitude of nystagmus is greater in the left eye. There were no significant symptoms of cerebellar dysfunction, and the fundi were normal. A caloric test with 5 cc. of cold water reveals no abnormal sensitivity of the labyrinths. The tympanic membranes are normal, and the eustachian tubes are patent. The patient had been in good health previously and the results of a medical checkup were negative. What is the significance of the symptoms of positional nystagmus and the differential diagnosis?*

*M.D., Massachusetts.*

Answer.—Positional vertigo and nystagmus are induced by change of body position from the horizontal to the erect or by quick movements of the head laterally or backward; they are labyrinthine in origin. A large group of patients with Ménière's syndrome complain of such vertigo, in contradistinction to the cases usually mentioned in literary discussions of Ménière's syndrome, in which the vertiginous attacks are sudden and apoplectiform in onset and not related to body motion or positional change. In many instances, there may be no cochlear functional disturbance or impairment.

There may be an alteration in vestibular function on one or both sides, varying in degree from hyperirritability to total loss of irritability to caloric stimulation. A rupture in the physiological, antagonistic balance between the two vestibular mechanisms results. Rapid positional change of the head or body and head causes a movement of the endolymph in the membranous vestibular labyrinth, which, with vestibular imbalance, will result in vertigo of brief duration.

A spontaneous nystagmus on extreme lateral gaze, not sustained for more than a few seconds, is of no diagnostic importance. Such nystagmus is usually due to a paresis of the external ocular muscles and is not of true central neurogenic origin. The difference in the amplitude of the nystagmus in the eyes on extreme lateral gaze is probably of external ocular myasthenic origin; this is not a disassociation of eye movements, since such disassociation is a condition in which the eyes do not move synchronously after vestibular stimulation. If present, such disassociation is indicative of a lesion of the central nervous system involving the posterior longitudinal bundles. A repetition of the caloric vestibular examination using mass stimulation with water at 68 F will probably show a difference in the character of the response of the labyrinths. Many patients suffering from Ménière's syndrome, in which the attacks of vertigo are induced by positional change and quick head movements, respond well to the Furstenberg treatment. This consists of a low salt diet and the administration of three 1 gm. capsules of ammonium chloride (not compressed tablets) taken with the meals three times daily for three days and then omitted for two days. The ammonium chloride treatment can then be repeated if necessary. (I have had equally good results with administering only 2 gm. of ammonium chloride three times daily.) A skull roentgenogram, which will probably be negative, would complete the study of this case.

## ADOPTION OF INFANT OF EPILEPTIC MOTHER

To the Editor:—*An epileptic, the mother of a newborn baby, would like to have her baby put up for adoption. A couple is interested in accepting this child in spite of the mother's epileptic background. The mother's epilepsy is idiopathic and has been well controlled by diphenylhydantoin (dilantin®) sodium and phenobarbital sodium. What are the chances of the epilepsy developing in the baby? What would be your advice to the prospective parents?* *M.D., Ohio.*

Answer.—According to an article on the heredity of epilepsy in The Journal (146:529 [June 9] 1951), there would be about 1 chance in 30 that any child of an epileptic parent would have one or more seizures. The chances of chronic epilepsy would be much less, perhaps 1 in 100. Other factors, such as familial history of epilepsy or migraine and gross dysrhythmia of the electroencephalogram, are important. Uncertainty regarding mentality or seizures is greater for a newborn baby than an older child. Final decision rests with the prospective parents.

## URETHRAL STRICTURE FOLLOWING PROSTATECTOMY

To the Editor:—*Please discuss treatment for urethral stricture following suprapubic prostatectomy.*

*Lawrence G. Heins, M.D., Abilene, Kan.*

Answer.—Stricture of the urethra following suprapubic prostatectomy usually occurs in two areas, at the bladder neck and in the bulbomembranous urethra. Postoperative cicatricial contracture involving the tissues at the bladder neck and adjacent urethra may be extensive and accompanied by much deformity. This condition can usually be corrected by transurethral resection of the scar tissue. Infection at the apex of the prostate gland involving the bulbomembranous urethra may be followed by a considerable degree of cicatricial contraction. The stricture should be treated by thorough dilatation of the urethra or by internal urethrotomy. Some patients are benefited by a large indwelling catheter, which remains in the urethra for two or three weeks, although the patients may not be able to tolerate this.

## REMOVAL OF STAIN FROM TEETH

To the Editor:—*Can anything be done to remove the yellow bacterial stain from teeth and prevent its recurrence?*

*Bernard Marcus, M.D., Raritan, N. J.*

Answer.—The natural color of human teeth varies. Attempts to alter the basic color of the teeth frequently results in irreversible damage to the superficial enamel. Owing to modern living and eating conditions, however, various deposits may form on the teeth, among which are mucinous film, materia alba, calcareous deposits, and green, black, and tobacco stains. The efficient removal of these deposits can be accomplished only by the dentist or by a trained dental hygienist. The procedures may include scaling, meticulous scouring with special abrasive preparations, and final polishing of the cleaned surfaces. Once polished, the surfaces can usually be kept free of recurrent stains or deposits by faithful adherence to an effective regimen for brushing the teeth, which must be learned under supervision.

## GUM CHEWING AND DENTAL CARIES

To the Editor:—*Is there evidence that a relationship between gum chewing and dental caries exists?*

*D. A. Dowell, M.D., Omaha, Neb.*

Answer.—The sugar content of commercial chewing gum is about 60% by weight. In experimental studies, the level of reducing sugar in the saliva (normally about 20 mg. per 100 ml.) rose to an average of 725 mg. per 100 ml. after five minutes chewing of a stick of commercial gum containing 500 mg. of glucose. At the end of 30 minutes the normal level was restored. It has been observed that in the presence of sugar the pH at the surface of the teeth in susceptible individuals falls below the level at which enamel is known to dissolve with rapidity. Further, experimental use of sugar-coated gum three times a day for 10 days was associated with a tenfold increase in the salivary lactobacillus count, a widely accepted index of caries susceptibility. More direct evidence is not yet available.

## POLYCYSTIC KIDNEYS

To the Editor:—*Two sisters have kidney cysts. The disease in one sister, aged 27, began in 1948, with a tumor of the abdomen; at that time her right kidney was removed. In August, 1949, and in June, 1950, operations involving puncture of cysts on the remaining kidney were performed because of a considerable increase in their size. Opening of these recurrent cysts was very difficult. The other sister, aged 33, had cysts of both kidneys punctured in 1949. The patients' father died as a result of kidney cysts. A third sister is healthy. Is there any therapy besides surgical intervention that will be effective in draining the cysts?* *Hans Staatsmann, M.D., Germany.*

Answer.—It is evident that the patients referred to have bilateral polycystic kidneys. This pathological lesion is of congenital origin and may be transmitted over several generations. There is no known cure. The therapy available consists of measures to preserve the renal function as long as possible and to aid the patient during the period of increasing renal insufficiency. Many of these patients live in a fair degree of health for many years, often as long as the sixth or seventh decade. Rovsing, the great Danish surgeon, was the first to employ puncture of renal cysts in order to relieve the remaining renal parenchyma from pressure. Results obtained from this operation have been variable, and it is questionable whether the procedure is of permanent benefit to the remaining renal tissue. In the presence of several unusually large cysts, particularly if hemorrhagic, drainage may give relief from local symptoms. Removal of a kidney, as in one of the cases reported, is often done in error through failure to recognize the pathological condition. A polycystic kidney should not be removed unless secondary complications, such as diffuse infection or multiple calculi, are present.

## VASCULAR ACCIDENT FOLLOWING EXPOSURE TO HEAT

To the Editor:—*A 49-year-old white man had a complete occlusion of the right femoral and iliac arteries. When he was operated on, extensive arteriosclerosis was found. At the time of the vascular accident, the atmospheric temperature was 110 F, and the man was laboring on asphalt with an estimated temperature of 280 F. His blood pressure, after observation, was 140/90. Did the excessive heat contribute to the acute occlusion, and, if so, what mechanism was involved?*

*Thomas L. Grayson, M.D., Larkspur, Calif.*

Answer.—It is impossible to state dogmatically whether the extreme heat contributed to this patient's arterial thrombosis, but it is quite possible that dehydration played a precipitating role. It can be assumed that the heat of the asphalt was mainly about the man's feet and legs and that considerable hyperemia of the lower extremities resulted; however, the significance of this element in localizing the site of thrombosis is difficult to determine. One wonders whether the man wore any constricting clothing, such as a band, to keep the heat from ascending his trousers. It is well known that tolerance to environmental heat is lowered with age. Although this man is 49 years old, chronologically, his severe arteriosclerosis makes him biologically older. Penetrating heat may have been a precipitating factor by causing edema of the vascular walls.

## GRANULAR MYOBLASTOMA

To the Editor:—*A nodule removed from the lip of a 26-year-old man was diagnosed as a granular myoblastoma. What are the nature and growth potential of this tumor?*

*James R. Brill, M.D., Randolph, N. Y.*

Answer.—Granular myoblastoma is supposedly a tumor derived from striated muscle, although smooth muscle may rarely give rise to similar lesions. Recently, this disease was reported to have occurred in cardiac muscle. The commonest site of origin is the tongue. Lesions are usually small, grow slowly, and are essentially self-limiting. Local surgical intervention is sufficient treatment. Malignant granular myoblastomas do occur, but such cases are exceedingly rare. In the present instance, assuming this tumor was designated merely as granular myoblastoma, without further qualification, it should be considered benign.

## CHANGE OF CLIMATE AND RESPIRATORY INFECTIONS

To the Editor:—*What is the advisability of a change to a mild climate for a patient with multiple cystic disease of the lung who is susceptible to upper respiratory infections and pneumonitis? In what locations in the United States would the patient do best?*

*M.D., Connecticut.*

Answer.—If the disease can be treated by operation, it is best to remove the cysts; otherwise, it is best to avoid a cold climate, although, unless proper heating facilities are provided in warm climates, chilling and infection can occur as easily a in cold climates. If the patient keeps warm during all weathe changes and avoids crowds, he will be approximately as health in one place as in another. Hawaii has the best climatic conditions of any territory under the United States flag. There ar few ideal places in the country, but the best climates ar found in the lower part of California and the tip of Florid Other places with good climatic conditions are the Ashevill region of North Carolina, the Sacramento Valley, "Valley o the Moon," California, and places of 3,000 ft. elevation or le in Arizona and New Mexico.

## RINGWORM OF THE SCALP

To the Editor:—*We have had, for a number of years, rin worm of the scalp in some of our school children. One ca has occurred in a boy who has been playing with a dog havi "hairless" spots on it. Three children who have been playi with kittens from one litter have new infections. The co munity is now thoroughly aroused over this condition. C you advise any program for handling such a situation in community of 5,000?* *C. M. Pierce, M.D., Chadron, Neb.*

Answer.—The U. S. Public Health Service furnishes such i formation. In addition, "An Introduction to Medical Mycolog (Lewis, G. M., and Hopper, M. E.; Chicago, The Year Bo Publishers, Inc., 1939) may be of assistance. One communi solved its problem relatively quickly by requiring every chi in town, whether infected or not, to wear a protective cap public. The infected children were given treatment, and all ch dren were examined periodically so that infection could be d tected and treated in its earliest stage. There must, of cours be no interchange of caps among the children.

## RECURRENT LARYNGEAL NERVE PARALYSIS

To the Editor:—*I would like information concerning the reli of bilateral paralysis of the recurrent laryngeal nerve follo ing thyroidectomy. A competent ear, nose, and throat sp cialist has advised against surgical intervention for this co dition. Is there any new treatment or type of operation th it is advisable to use in a case of this kind?*

*Edwin E. Benoist, M.D., Natchez, Miss.*

Answer.—Bilateral paralysis of the recurrent laryngeal ner following thyroidectomy can be treated successfully by modi cations of the King operation. This procedure widens the chi of the glottis to make normal respiration possible and, if pe formed exactly right, also leaves the patient with satisfacto voice. If performed by a skilled surgeon this operation gives go results and can be recommended without hesitation. It shou not be attempted by those who have not had special training its use.

## LEUKEMIA CUTIS

To the Editor:—*Over a three year period, skin lesions th have been diagnosed by biopsy as leukemia cutis have d veloped in a patient. Clinical and laboratory studies sho no evidence of systemic leukemia. I would appreciate kno ing the present treatment of the skin manifestations and t prognosis in regard to future development of leukemia in th patient.* *L. A. Owens, M.D., Hazard, Ky.*

Answer.—Such lesions usually respond to treatment wi small doses of x-rays. It is impossible to venture a guess as the prognosis. Cases have been known to persist for years befo evidence of systemic leukemia appears in the hemogram.

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# EVALUATION OF A CANCER DETECTION CLINIC

*E. E. Clifton, M.D.*
*and*
*Arthur J. Donovan, M.D., New Haven, Conn.*

Many cancer detection clinics have been established throughout the country on the premise that cancer can be diagnosed in the apparently well persons, and that as a result of early diagnosis the rate of long-term survival following treatment can be improved. Reports from various centers indicate that 0.5 to 1% of asymptomatic persons in the so-called cancer age groups may be expected to have detectable malignant growths.[1] However, the clinics that can qualify as detection centers are so limited by regulations that evaluation of their work is most difficult. The value of such clinics with respect to the number of cancers detected as compared to the amount of time and money expended has been seriously questioned.

Much opposition to the detection clinics has developed for obvious reasons, which need not be discussed, and many substitutes have been suggested. Unfortunately, no truly objective reports have come from such substitute groups to compare with the meager reports from detection clinics. One would conclude from reading the reports that no true detections, in the sense of the detection clinic evaluations, have been made, but that these groups are comparing their symptomatic cases with the truly asymptomatic cases of the detection clinics.[2]

The New Haven Detection Clinic was established on an experimental basis and was opened in February, 1947. From the outset the routine examination consisted of a complete history and physical examination, complete blood cell count, urinalysis, Mazzini test, stool guaiac test, Papanicolaou smears of the cervix, and 28 mm. chest film. In addition, radiographic, endoscopic, and other laboratory examinations, including biopsy, were performed as indicated. We have not been hampered by many of the limitations imposed on some other clinics. In contrast to the practice in most clinics, symptomatic patients were examined, and all patients with previously proved carcinoma who had been referred to the regular tumor clinic for long-term care were given a cancer detection examination. Furthermore, we have been able to follow patients with precancerous or suspicious lesions.

The philosophy underlying the decision of the clinic to do a detection examination on symptomatic patients and even those with previously proved malignant growth deserves some comment. The following factors influenced the decision:

1. The number of patients in the cancer age group who are truly asymptomatic when an adequate history is taken is very low.
2. Symptoms related to one organ, even known disease in that organ, whether malignant or benign, do not preclude the presence of asymptomatic carcinoma in another site. Actually, our findings indicate that this association is frequent.
3. The assumption that the patient in the course of diagnosis and treatment for one disease receives an examination adequate for detection of asymptomatic cancer is patently in error. Case 5 is just one example in our own institution.

This study was undertaken to answer several questions, including those that follow.

1. How many cancers in the asymptomatic stage were detected and diagnosed in this clinic?
2. How many cancers were detected in symptomatic patients as compared with asymptomatic patients?
3. Had the diagnosis been missed in patients with cancer examined in the detection clinic, and, if so, could the danger be minimized by increasing the extent of the examination?
4. Would a limited type of examination have resulted in fewer detections in this group of patients?

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From the Department of Surgery (Oncology), Yale University School of Medicine. Assistant Professor of Surgery (Oncology) (Dr. Cliffton); Ass s Resident Surgeon, Grace-New Haven Community Hospital (Dr. Donovan).

This work was carried out in the Tumor Registry and Tumor Clinic of Yale University School of Medicine, supported by the Jane Coffi yon Fund and a grant from the Connecticut Cancer Society. The special follow-up clinic and special workers were provided by funds from a Damo Society Institutional Research Grant.

[1] Jones, H. W., Jr., and Cameron, W. R.: An Appraisal of Cancer Detection Centers, J. A. M. A. **143**: 228-232 (May 20) 1950. Acke L. V., and del Regato, J. A.: Cancer: Diagnosis, Treatment, and Prognosis, St. Louis, C. V. Mosby Company, 1947. Garland, L. H.: Cancer Dete Centers: Experience to Date in California, California Med. **72**: 99-103 (Feb.) 1950.

[2] Siddall, A. C.: Cancer Detection in Rural Practice, J. A. M. A. **145**: 314-317 (Feb. 3) 1951.

5. What is the chance that cancer will develop in the early future in a patient considered free of cancer in this routine clinic examination?

## ORIGINAL MATERIAL

The 790 patients included in the study were originally examined in the detection clinic between February, 1947, and April, 1948. The patients were referred from the following sources: medical sources, 36.33%; Cancer Information Center, 25.32%; self, 38.35%. Only 14.30% were completely asymptomatic. Patients of all ages were accepted.

## METHOD OF FOLLOW-UP

The study was initiated in September, 1949; therefore, there was an interval of at least two years between the original visit and the follow-up study. Whenever possible information was obtained by personal interview with the patient. Information was already available on patients who had had a malignant growth, since they were listed in the tumor registry, and either they had been followed in the tumor clinic or information had been obtained at intervals from their personal physicians or other hospitals. If a patient had been seen in one of the other New Haven hospital clinics, but refused to return for our follow-up visit, visits to other clinics were considered adequate for purposes of this study if the last visit had been made not less than one year after the initial examination. If a patient had made no clinic visit, information was obtained from the family physician. If none of these sources was productive, the patient's own statement as obtained by letter was accepted. The sources of follow-up information and the percentage of cases for which they supplied data are given in the following tabulation.

| | |
|---|---|
| Tumor clinic (special and regular) | 68.35% |
| New Haven hospital | 7.21% |
| Local physician | 6.20% |
| Self | 9.50% |
| None | 8.74% |

Information was obtained on 723 (91.26%) of the nts studied. Excluding those whose own evalua- s obtained by letter and those on whom no in- on was available, 81.76% had completely ade- follow-up. It is entirely possible, of course, that of those whom we could not trace died of carcinoma.

## RESULTS

*Patients in Whom Diagnosis of Cancer Was Suspected Previously but Not Proved.*—In 34 patients the diagnosis of cancer was suspected at initial examination but never proved. In 31 the diagnosis was excluded. The diagnoses included seven breast lesions proved benign by biopsy; seven questionable lesions of the uterine cervix proved benign by biopsy; seven questionable gastrointestinal lesions excluded as cancers by radiological examination; three skin lesions excluded pathologically; two carcinomas of the stomach diagnosed by oentgenograms in patients who refused operation and ose subsequent course has not substantiated the diexsis; and one lip lesion and one oral lesion, both Ted pathologically.

study of the three patients who refused follow-up cally as c women with breast lesions diagnosed clini-inoma. The third was a man with a probable basal cell tumor of the skin. Two had symptoms caused by the tumors; therefore, even if the clinical impressions had proved correct, these two could not have been called true detections. One patient with a breast lesion had no symptoms referable to the tumor.

*Patients in Whom the Diagnosis of Cancer Was Proved.*—Of the 790 patients, 177 had a diagnosis of malignant tumor confirmed. In 80 the diagnosis was known prior to their first clinic visit. Of the other 97 patients, 56 were sent to the clinic by some medical source for diagnosis; 2 came to the clinic voluntarily because of fear of recurrence of a previously treated carcinoma; and 25 asked for an appointment because of symptoms subsequently proved to be due to carcinoma. In four patients completely asymptomatic carcinoma was diagnosed (Cases 1, 2, 3, and 4). Two patients seen because of a carcinoma were found to have a second lesion at the initial examination (Cases 4 and 5), and in one patient the second tumor was asymptomatic. The percentages of all patients with proved cancer in each category are as follows:

| | |
|---|---|
| Diagnosis known when first seen | 45.19% |
| Diagnosis suspected when first seen | 31.52% |
| Recurrence suspected | 1.12% |
| Self-referral because of symptoms caused by cancer present | 14.12% |
| Asymptomatic | 1.68% |
| Late diagnosis of cancer | 6.37% |

Fifteen patients were found to have carcinoma subsequent to detection examination. Ten of these patients had not had carcinoma previously (Cases 6, 7, 8, 9, 12, 13, 17, 18, 19, and 20). Five patients had had previous treatment for carcinoma (Cases 10, 11, 14, 15, and 16). It is possible that in two cases of the latter group the tumors were actually recurrences.

An essentially equal number of proved carcinomas occurred in men and women, in contrast to the ratio of less than 1 to 2 of men to women in the group as a whole. The age distribution of patients with cancer as compared with the age distribution of the total group is given in the accompanying table. It is noteworthy that of the 19 patients in whom asymptomatic cancer was diagnosed originally or in whom cancer was subsequently diagnosed, 9 (almost 50%) were under 45.

*Comparison of Age Distribution of Total Group and Cancer Patients*

| Age Group, Yr. | Percentage of Total Group | Percentage of Cancer Patients |
|---|---|---|
| 0- 9 | 3.17 | 0.62 |
| 10-19 | 2.74 | 1.86 |
| 20-29 | 12.14 | 3.73 |
| 30-39 | 19.51 | 6.83 |
| 40-49 | 20.66 | 16.77 |
| 50-59 | 21.82 | 24.84 |
| 60-69 | 12.28 | 26.70 |
| 70-79 | 6.07 | 12.42 |
| 80-89 | 1.58 | 6.21 |

## ASYMPTOMATIC TUMORS DISCOVERED

Four patients were "asymptomatic," in the sense that they did not come to the clinic because of symptoms related to a subsequently proved carcinoma. Three of the four, however, had symptoms related to another organ.

## REPORT OF CASES

Case 1.—A 68-year-old white man was sent to the clinic because of a cutaneous horn at the inner canthus of the right eye, which proved benign on biopsy. A chest roentgenogram revealed a mediastinal mass. The patient refused to return for further investigation of the chest findings, but four months later chest symptoms developed, and he was admitted on the medical service. A final diagnosis of carcinoma of the trachea was made.

Case 2.—A 35-year-old white woman who came to the clinic because of breast pain was discovered to have a granular cervix, which was considered suspicious. Papanicolaou smears were positive, and a biopsy was interpreted as showing Bowen's disease of the cervix.

Case 3.—A 42-year-old white woman with a normal-appearing cervix was found to have carcinoma of the cervix by biopsy performed because of persistently positive Papanicolaou smears.

Case 4.—An 83-year-old man was seen at the request of the surgical service because of a sore on the lower lip which eventually proved to be epidermoid carcinoma. During the examination a nodular prostate was felt. The subsequent course has substantiated the diagnosis of carcinoma of the prostate.

Although the patient in the next case had symptoms before examination, his case is included under this heading as another instance of a second carcinoma found at initial examination.

Case 5.—A 47-year-old white man was sent to the clinic following hospitalization for treatment of carcinoma of the tongue. He had one episode of rectal bleeding subsequent to discharge from the hospital and prior to his clinic visit. Further study led to a diagnosis of adenocarcinoma of the rectosigmoid.

We are convinced that this man's lesion would not have been discovered at this early stage in the ordinary course of events, since, two weeks before, he had had a complete hospital examination without discovery, and almost certainly the lesion would not have been discovered in routine follow-up. The history of bleeding was obtained only after the lesion had been palpated. Despite this, the finding of an adenocarcinoma in this case is not considered a true detection.

## CARCINOMA DIAGNOSED DURING FOLLOW-UP PERIOD

In 15 patients the diagnosis of carcinoma was made subsequent to cancer detection clinic examination. Ten of these had no previous carcinoma; five had had previous carcinoma. For purposes of discussion they may be divided into three groups.

*Group 1.*—This group is comprised of patients in whom the tumor was present but not diagnosed at initial examination.

Case 6.—S. G., a 38-year-old white man was seen originally because of a mass at the base of the tongue. The lesion was firm, not ulcerated. The biopsy report described the lesion as "muscle with chronic inflammatory reaction." The patient was discharged with this diagnosis. When seen in the course of this study 32 months later, the mass was larger. Biopsy done at that time indicated mixed salivary gland tumor.

Case 7.—E. L., a 54-year-old white woman, was examined originally because of development of cervical adenopathy. The clinical diagnosis was lymphosarcoma, but two lymph node biopsies revealed no abnormalities. A third biopsy performed elsewhere three months later revealed lymphosarcoma. The patient's course had substantiated this diagnosis.

Case 8.—B. P., a 42-year-old white woman, came to the clinic because of a "mass in the left breast." A hard nodule 1 to 2 cm. in diameter was felt below the inframammary fold over the sixth left costal cartilage. This was not considered significant by the examiner. Two and one-half years later what was said to be the same mass was removed elsewhere with a pathological diagnosis of adenocarcinoma.

Case 9.—F. A., a 74-year-old white woman, came to the clinic with a lesion of the nasolabial fold. Examination revealed a right adnexal mass. The patient was admitted to the hospital and a simple cyst was removed from the right ovary. The skin lesion was diagnosed clinically as hyperkeratosis, and the patient was not returned to the tumor clinic. Eight months later when the skin lesion was finally biopsied, it was found to be a basal cell tumor.

All four of these patients should have received diagnoses as a result of their visits to the detection clinic, tumor clinic, or hospital. Only Case 8 can be considered a failure of the detection clinic if the information obtained by letter in the follow-up study is correct, since this patient was discharged as not having a tumor. The results in Cases 6 and 7 were not errors of the detection clinic, but rather of the standard methods of diagnosis, biopsy, and pathological examination, and the result in Case 9 was due to failure of the hospital service either to care for the lesion or to return the patient to the tumor clinic for biopsy.

*Group 2.*—This group is comprised of patients in whom the tumor possibly was present, but was not amenable to diagnosis by the type of examination given.

Case 10.—E. A., a 64-year-old white woman, was examined after discharge from the hospital, where fibrosarcoma of the foot had been treated. Nine months later adenocarcinoma of the sigmoid was resected elsewhere. At the time of her original visit, no bowel symptoms were present, the result of a stool guaiac test was negative, and results of rectal examination were completely negative. The tumor was well above the examining finger at resection.

Case 11.—M. A. was a 36-year-old white woman with an exceedingly complicated medical history. Nine years previously a mass had appeared in the abdomen following an episode of trauma. At exploration the patient was told that a cancer was found, and she was given x-ray treatment. The abdomen was subsequently reexplored at another hospital and a biopsy was made of a retroperitoneal mass. Slides of tissue removed at this operation were seen by several competent pathologists, but no definite diagnosis was made. The consensus was that the tumor was not malignant. Detection examination revealed only leiomyomas of the uterus. Two years later, when these were removed, a mass was found in the omentum. The pathological diagnosis was fibrosarcoma.

Case 12.—W. B., a 42-year-old white man, came to the clinic with numerous complaints and was discharged as having no organic disease. Six months later pain developed posteriorly in the right side of the chest. Eventually a diagnosis of rhabdomyosarcoma of the mediastinum was made. The patient was dead within eight months after a cancer detection clinic examination, which had revealed no abnormalities. A 28 mm. chest film had been called normal at the clinic. With the diagnosis known the radiologists were still unable to see any evidence of tumor on the original film.

*Group 3.*—The patients in this group were those in whom the tumor probably developed subsequent to the examination in the detection clinic.

Case 13.—R. D., a 68-year-old white man, was found to have two basal cell tumors 18 months and epidermoid carcinoma of the scalp 21 months after examination, while being followed in the tumor clinic for hyperkeratosis observed in the detection clinic.

Case 14.—B. H., a 72-year-old white man, was followed for a basal cell tumor of the nose diagnosed as a result of his detection clinic examination. A new basal cell tumor developed months later.

Case 15.—L. B., a 50-year-old white woman, had be lowed for 18 months after radical mastectomy for carci ght the breast when a recurrent lesion was excised from ocar- axilla (the side of the tumor). Two months later a possible cinoma was removed from the opposite breast. It is to say whether this was a recurrence or a new tu

CASE 16.—In J. R., a 59-year-old white man, apparently primary carcinoma of the larynx developed 18 months after resection of a primary carcinoma of the lung. The intervening respiratory tree was normal.

CASE 17.—S. L., a 52-year-old white woman, had a total hysterectomy in another hospital for fibroids 15 *months* after discharge from the clinic with a negative Papanicolaou smear. Pathological examination of the operative specimen revealed epidermoid carcinoma of the cervix. This had not been suspected preoperatively.

CASE 18.—M. Y., a 38-year-old white woman, had a diagnosis of chronic cystic mastitis at initial detection examination. She was followed for this lesion. Two years later a discrete mass was palpated on routine examination, and the patient was admitted to the hospital. Pathological examination revealed carcinoma of the breast. The mass measured only about 0.5 cm. in diameter.

CASE 19.—J. K., a 40-year-old white woman, eight months after examination had nasal symptoms, and 15 months after examination was treated for fibromyxosarcoma of the nose.

CASE 20.—H. S., a 42-year-old white woman, noted supraclavicular and axillary adenopathy about two years after discharge from the clinic. Biopsy of the nodes was performed elsewhere, and a pathological diagnosis of lymphoma, probably lymphocytic, was made.

## SUMMARY OF RESULTS

Follow-up information was obtained on 91.52% of the 790 patients examined in the detection clinic between September, 1947, and April, 1948. In 19 (2.40%) of the patients, an asymptomatic carcinoma was found originally (4 cases), or a carcinoma was diagnosed within about two years of the initial examination (15 cases).

In four patients completely asymptomatic carcinomas were diagnosed: two of the uterine cervix; one of the trachea; and one of the prostate (Cases 1, 2, 3, and 4). Three of these four patients had symptoms related to other organs. The incidence of asymptomatic carcinoma is therefore 0.5% for the entire group.

Two of the 166 patients seen because of one primary tumor were found to have a second at the initial examination (Cases 4 and 5). One of these was symptomatic by our strict criteria (Case 5), the other asymptomatic (Case 4); the latter tumor is included as one of the detection finds mentioned above. In four patients with one primary a second lesion developed during the follow-up period (Cases 10, 14, 15, and 16). The incidence of second primary lesions is therefore 6 (3.38%).

Fifteen patients had a diagnosis of malignant tumor made subsequent to detection clinic examinations. Four of these might have had the diagnosis made at the time of the initial examination; that is, two tumors were not discovered because results of biopsies were negative (Cases 6 and 7), one because another lesion was considered more important and the patient was not reevaluated (Case 9), and the fourth was not suspected because of the unusual position of the lesion (Case 8). In three cases the tumor possibly was present when the patient was first seen, but was not diagnosed by the type of examination given (Cases 10, 11, and 12). In three patients the tumor probably developed after discharge from the clinic (Cases 17, 19, and 20), in four the tumor developed while the patients were being followed in the clinic for another malignant tumor (Cases 13, 14, 15, and 16), and in one carcinoma developed in a suspicious lesion being followed periodically (Case 18).

Two of the four patients with the diagnosis of asymptomatic carcinoma were under 45; of the 15 patients with the late diagnosis of cancer, 7 were under 45.

## COMMENT

Although this series is small, several interesting and important tentative conclusions can be reached. On the basis of our findings there is no justification for limiting the detection examination to truly asymptomatic persons. Three of the four patients in whom asymptomatic carcinoma was detected came to the clinic with symptoms related to another organ. The high incidence of a second carcinoma (3.38% in this series) is a compelling reason for examining patients with treated carcinoma frequently and completely. There is a real possibility that a second carcinoma will develop while suc patients are being followed.

About 50% of the patients with asymptomatic cancer or with the late development of carcinoma wer between 35 and 45. No patient was under 35. Examination of patients under 35 will certainly give a lo yield of carcinoma and probably is unjustified from practical point of view.

To answer the question of how extensive the detection examination should be, we must critically evaluate tumors detected in an asymptomatic state and thos missed. With the examination outlined we detected tw malignant growths of the uterine cervix, one of th trachea, and one of the prostate. Four additional carcinomas present and physically palpable were not correctly diagnosed for reasons previously stated—negative biopsies in two and errors in clinical judgment i two. All of these tumors would have been amenable t diagnosis by a rapid screening examination of th skin, oral cavity, breasts, abdomen, rectum, and vagina with a chest roentgenogram and Papanicolaou smear of the cervix. In other words, the same number of tumors was missed as was detected with the complet examination, and none of those detected would hav been missed with the already described limited examination. (In this series, urinalysis, blood cell count, an a Mazzini test in no case aided in early diagnosis of malignant lesion.) One of the most frequent criticism of the detection centers, and one that is not without basis, is that they see only a small segment of the population. The limited type of examination would allo much larger numbers to be seen.

Also to be considered in any discussion of the desired extent of examination are the tumors probabl present but not amenable to diagnosis. There wer three such lesions in our series—two intra-abdomina and one intrathoracic. Sigmoidoscopy or barium enem might have led to the diagnosis in one case (Case 10) It is doubtful if this is adequate reason in itself for performing routine sigmoidoscopy or barium enema. In th recent literature there have been reports of a high incidence of benign polyps (8 to 12%) on sigmoidoscopi examination of symptom-free persons.[3] If this wer true, routine sigmoidoscopy would logically be an inte gral part of any detection examination (as it is in some detection clinics). The two other tumors (Cases 11 and 12) could not have been diagnosed by any presently available procedure that could be added to a cancer detection examination.

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[3] Christianson, H. W., and Tenner, R. J.: Results of Sigmoidoscopic Examinations at a Cancer Detection Center, Am. J. Surg. 81: 14-17 (Jan.) 1951. Young, V. T.: Routine Examination of the Lower Bowel: Results in [illegible] Asymptomatic Patients, ibid. 81: 18-24 (Jan.) 1951.

The desirability of adding one or two of the better "cancer tests," nonspecific as they are, to the armamentarium of the clinics should perhaps be mentioned. In this series only 36.3% of the tumors probably present initially were diagnosed immediately. The reported incidence of false negative results with some of the cancer tests is not this great. The use of such a test would involve repeated examinations and careful follow-up of all patients with positive results.

Another possible method of increasing the efficiency of the clinic would be to perform repeated examinations at definite intervals. With yearly examination the number of patients involved rapidly would become unwieldy. Examinations every six months would be utterly impossible.

As mentioned previously we had 19 patients (2.6% of those followed) in whom we diagnosed an asymptomatic carcinoma initially or who had a carcinoma diagnosed within two years of examination. This is a significant number. It must be remembered, however, that 7 of the 15 with late diagnosis of cancer were being followed in the tumor clinic for another tumor or for a suspicious lesion.

One method of evaluating the efficacy of annual examination is by reviewing the patients with late diagnosis of cancer to determine what effect annual examination would have had on the course of their disease. If these 15 patients with late diagnosis of cancer had been followed at yearly intervals, the results probably would have been as follows: at one year, 4 would have had the tumor already diagnosed and treated, 3 would have had symptoms of a tumor undiagnosed and untreated, one would probably have had an asymptomatic tumor of the cervix that could be diagnosed by detection, and 7 possibly would have had an asymptomatic tumor; at two years examination, 13 of the 15 would have had tumors diagnosed and treated, and the remaining 2 would have been asymptomatic, but cancer of the breast and lymphoma would have been diagnosable.

Therefore, by yearly examination at least an additional 3 (Cases 17, 18, and 20) out of 15 tumors could have been diagnosed asymptomatically. Two (Cases 6 and 7) of the three who would have been symptomatic but untreated at one year were patients in whom the tumor had been misdiagnosed at initial examination. This error played a large part in delaying treatment in these patients.

Again, accepting that this is a small group of patients upon which to draw any conclusions, it does not seem that yearly examination of a group of patients in a cancer detection clinic, such as the one here described, would aid materially in early diagnosis of cancer. In many patients symptoms would develop in the interval between examinations, and these patients would receive treatment. One of the dangers to be considered is that patients might delay treatment in the knowledge that they would have a "cancer examination" in a few weeks or months. This, however, has not been our experience.

It may be difficult to justify the expense of the detection clinics in time and money if they are evaluated only on the basis of their value in public health or as a service function. Detection of a few early carcinomas is valuable to the persons concerned, but is of little aid in the major fight against cancer. Our figures for the number of tumors detected originally compare favorably with those reported elsewhere. It is not unlikely that follow-up studies on other series would give results similar to those noted above. However, detection clinics have a great value that justifies their cost. They should be, and some are, engaged in active research to develop new methods of detection and diagnosis of cancer. They are constant reminders to physicians and other clinics of the necessity of early detection of tumors. They should be educational centers for students and practicing physicians in the methods of detection and early diagnosis of tumors.

## CONCLUSIONS

Cancer detection centers cannot logically be limited to examination of asymptomatic persons and still detect as many cancers as possible. In this particular group of patients a limited type of examination would have resulted in detection of as many tumors as complete examination. Yearly examination of patients without tumors would lead to early diagnosis in several cases. The number of asymptomatic tumors detected with yearly examinations in comparison to the total number of tumors developing and being treated in the interval between yearly visits probably is not great enough to justify the amount of time and money required. The addition of one or two of the better "cancer tests" to the armamentarium of the clinics on a limited scale should be considered. A given group of patients would have to be followed for a protracted period before any large amount of money was expended to add such tests to all clinics. Cancer detection clinics should be maintained for educational purposes and as clinical experimental tools, with the service offered to patients being accepted as an additional reward rather than the primary objective.

## ADDENDUM

Continued efforts to complete the follow-up in this series have resulted in adequate information on 41 additional patients, a total follow-up of 764 (96.5%) of the 790 patients examined. One of the 41 patients followed subsequent to submission of this manuscript was the patient with an asymptomatic breast lesion, clinically carcinoma, mentioned in the group of 34 patients in whom diagnosis was suspected but not proved. A radical mastectomy had been performed on her at another
pital with a pathological diagnosis of carcinom
months after her detection examination. Thus th
for true detections is five (0.63% of the 790
instead of four.

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# RELATIONSHIP OF ESOPHAGEAL HIATUS HERNIA TO ANGINA PECTORIS

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Paré [1] first described esophageal hiatus hernia in 1575, but the literature, as reviewed by Young,[2] Putney,[3] and others, contains only scattered references to this condition until some 20 years ago. Recent advances in roentgenology have led to its being diagnosed with increasing frequency, and numerous studies have lately appeared on the subject.

Von Bergmann,[4] in 1932, was the first to exhibit an interest in the similarity of pain in hiatus hernia and angina pectoris, and during the next few years a number of single instances of such a resemblance were described.[5] In 1933 Harrington [6] reported a study of 66 instances of hiatus hernia, in which he observed that attacks of pain are occasionally considered to be due to coronary sclerosis or myocardial disease. The same author [7] in 1940 reported on 198 cases of hiatus hernia in which he had operated, and stated that an average of three erroneous diagnoses had been made in each case before final recognition of the hernia, cardiac disease standing seventh on the list of erroneous diagnoses.

In 1941 Jones [8] published a detailed study of the observations made upon 128 patients with diaphragmatic hernia. He found that "the frequency with which the clinical histories of these cases suggested organic heart disease was impressive." Numerous similar observations have been published in recent years,[9] in the majority of which the coexistence of hiatus hernia and coronary disease was also noted. Gilbert [10] in particular studied 44 angina patients by roentgenograms, and found hiatus hernias in 18. He believed that the herniation influenced the occurrence of angina pectoris, and that its medical management was a definite influence in obtaining relief.

Brick [11] grouped the manifestations of hiatus hernia to syndromes: the esophageal, the gastric and duode-, the cholecystic, and the coronary artery syndromes. found that 28% of his hiatus hernia patients fell into e last group. In contrast to many other observers, however, he found that actual reports of the coexistence of hiatus hernia and coronary disease were rare. As to frequency of occurrence of esophageal hiatus hernia in otherwise normal persons, no satisfactory group has as yet been reported. From studies of large series of x-ray pictures the incidence has been variously reported from 0.133% to 8.93%.[12]

From this brief review of an extensive literature, it is evident that the similarity between the symptoms of heart disease and hiatus hernia has often been pointed out in recent years. Just how frequently patients with angina pectoris may have associated hiatus hernias, how often the symptoms of hiatus hernia simulate those of angina pectoris, and how frequently hiatus hernia occurs in persons without heart disease are questions as yet not definitely answered.

The present study concerns the number of hiatus hernias found in 100 private patients with a diagnosis of angina pectoris, and the incidence of hiatus hernias found in 957 persons upon whom x-ray examinations were made because of gastrointestinal symptoms or to rule out the presence of gastrointestinal lesions. In both groups special emphasis was placed upon demonstrating the presence or absence of hiatus hernia, and all of the examinations were made by the same roentgenologist. An ideal control group would consist of a large number of persons with no symptoms in whom a search for hiatus hernia was made. I have been unable to find reports of any such study.

In our group of 957 patients, 78 (12.27%) were found to have hiatus hernias. Of these hernias, 9 were of the so-called short esophageal type, 53 were small, 3 cm. or less in diameter, 9 were medium, 3 to 7 cm., and 7 were large, more than 7 cm. in diameter. While this is a considerably higher percentage than in previously reported control groups, I suspect that it is still far from the actual number of hernias present. The reason for this belief is the report of Harrington [7] that in 500 abdominal operations he examined particularly the esophageal opening from within the peritoneal cavity, and found that in 33% one or more fingers were admitted between the diaphragm and the esophageal ring.

In contrast to the 12.27% incidence of hiatus hernias found in the control group, a group of 100 patients with a clinical diagnosis of angina pectoris, who had been under my care for periods of time varying from one month to 14 years, were examined by roentgenograms to determine the incidence of hiatus hernia. The ages varied from 38 to 72 years; 55 were men and 45 women. Ten of this group died, and postmortem examinations were done on six of them, the pathological findings corroborating the diagnosis. Of the total group of 100 patients, 25 were found to have hiatus hernias. Twenty-two of the 25 hernias were small in size, approximately 3 cm. in diameter, and 3 were large, being greater than 7 cm. in diameter. On careful study, 7 (35.7%) of the 25 patients with hiatus hernias were judged to have no demonstrable coronary artery disease, and their symptoms were attributed to the presence of hiatus hernia.

CASE 1.—M. E., a 50-year-old married woman, gave a history of "indigestion" for many years, which consisted of fullness after eating, distress beneath the lower sternum, a dull, persistent pain referred through to the left neck, to the left shoulder and

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[2] Young, D.: Esophageal-Hiatus Hernia, Rev. Gastroenterol. **9**: 345, 1942.

[3] Putney, F. J.: Thoracic Stomach Produced by Esophageal Hiatus Hernia and Congenital Short Esophagus, *Ann. Int. Med.* **28**: *1094, 1948.*

[4] Von Bergmann, G.: Das "epiphrenate Syndrom," sein Beziehung zur Angina pectoris und zum Kardiospasmus, Deutsche med. Wchnschr. **58**: 605, 1932.

[5] (*a*) Ernstene, A. C., and McGurl, F. J.: Esophageal Hiatus Hernia Associated with Hypochromic Anemia and Angina Pectoris: Report of a Case, Cleveland Clin. Quart. **7**: 209, 1940. (*b*) Everingham, S.: Esophageal Hiatus Hernia, West. J. Surg. **56**: 16, 1948. (*c*) Herrick, J. B.: On istaking Other Diseases for Coronary Thrombosis, J. M. Soc. New ey **32**: 590, 1935. (*d*) Moschcowitz, E.: The Simultaneous Association atus Hernia and Coronary Disease, J. Mt. Sinai Hosp. **4**: 272, 1937. d, W. D.: Hiatus Hernia Simulating Cardiac Infarction: Report of w England J. Med. **223**: 50, 1940. (*f*) Wahn, R. B.: Über den hang des Hiatusbruches mit Herzstörungen, Deutsche med. **34**: 1443, 1938.

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down the inner aspect of the left arm to the elbow. This pain was especially apt to follow a full meal or to occur after she retired. It was relieved by belching. In 1942 her gallbladder was removed. The pathologist reported that it showed no evidence of disease. Her symptoms continued. In 1944 she entered the hospital with a diagnosis of angina pectoris, at which time I saw her in consultation. On further study, heart disease was not found. A hiatus hernia 10 cm. in diameter was demonstrated. Surgical repair relieved her of her symptoms. This story has been repeated several times in instances recorded in the literature.

Case 2.—M. D., a man 38 years of age, in 1942 had complained for six months of bouts of pain in his cervical spine, radiating down both arms. Three months later the pain seemed to start in his middle chest and radiate into the arms and down into the little finger of each hand. The pain was constant, severe, lasted about one half hour, and was associated with belching and sweating. It occurred especially after large meals and during sleep. It was relieved promptly by alcohol or glyceryl trinitrate (nitroglycerin). X-ray studies of the spine, gallbladder, and gastrointestinal tract and an electrocardiogram revealed no abnormalities.

One year later he was reexamined and a hiatus hernia recorded by the roentgenologist as "possibly too small to cause symptoms" was found. He was placed upon medical management for his hernia. His bouts of pain lessened gradually, and three years later he was working steadily as an auto mechanic and regarded himself as well.

Case 3.—C. D. C., a male physician, age 52, for three years had experienced a severe ache beneath his lower sternum, with associated cramping in his jaw. He had it constantly day and night for from 3 to 30 days at a time. It was more marked when he was lying down. It was aggravated by tension. For the previous year and a half he had noted in addition to the above symptoms acid eructations and heartburn coming on one to one and one-half hours after meals and relieved by alkali. During the past six months he had had difficulty in swallowing and regurgitation. At times he would be entirely free from these symptoms for some months.

Previous roentgenological studies of the gallbladder and gastrointestinal tract had revealed no abnormalities. Electrocardiograms repeatedly showed normal cardiac function. In view of continued normal cardiac findings and electrocardiographic studies, a restudy of the gastrointestinal tract was made, and it revealed a small hiatus hernia of the short esophagus type. Medical management and reassurance that his disease was not an angina has resulted in cessation of his symptoms.

Case 4.—Mrs. M. M., age 56, noted pain beneath the lower sternum in November, 1945, radiating to both shoulders, arms and fingers. It appeared midmorning, after the evening meal, and frequently after retiring, being relieved by sitting up. Following application of hot towels to the abdomen these symptoms disappeared for several weeks, to return in February, 1946, when the previous remedy of hot towels was no longer effective. In addition to the bouts of pain, which now were more severe, she had frequent vomiting. Results of laboratory examinations were entirely negative. X-ray study revealed a hiatus hernia 3 cm. in diameter. Medical management resulted in effective relief.

Case 5.—Mrs. F. C. was 76 years old. At the age of 66 years she was seized with severe low substernal pain with a "sense of gas pressure" in the left lower quadrant. This was relieved in part by belching. A diagnosis of coronary thrombosis was made. She spent six weeks in bed and limited her activities markedly thereafter. One year later a cardiac consultant concluded, after careful study and electrocardiograms that showed normal heart function, that the patient had not had a coronary thrombosis. During the following four years she suffered 20 bouts similar to the one described above. During this time she acted as her own physician and upon recovery from each attack proceeded with her usual active life. At the age of 76 she was reexamined, with normal findings so far as the heart and circulatory system were concerned, but x-ray study revealed a small hiatus hernia. Medical management undoubtedly had some part in the absence of further bouts for the next two years, at which time she succumbed to a virus pneumonia.

Case 6.—Mrs. E. K., age 61, differed from the aforementioned patients. She was followed for a period of 14 years, 1932 to 1946. She had distress high in the epigastrium, extending up under the lower third of the sternum. The distress was vague and difficult to describe, but "seemed like gas and was relieved by soda." It came on shortly after eating. On examination, the heart was small and the electrocardiogram negative. These negative findings were re-affirmed two years, three years and five years later, when she complained of a peculiar sensation in the epigastrium, noted upon retiring and relieved by glyceryl trinitrate (nitroglycerin). In 1942, or 10 years later, significant changes had occurred in the electrocardiogram and the orthodiagram demonstrated a broadening in the transverse diameter of the heart of 2 cm. over previous measurements. The patient now described a clutching sensation beneath her upper sternum brought on by walking. Heart disease had entered the picture. X-ray study at this time demonstrated a hiatus hernia 3 cm. in diameter. Her activities became gradually more limited. She died suddenly in 1944.

In this instance the story is suggestive of symptoms caused by a hiatus hernia. During the latter part of the patient's life, both heart disease and hiatus hernia were present. It is well to remember that hiatus hernia and heart disease may be coexistent, as has been frequently noted in the literature, and that the enthusiasm of the physician should not attribute the symptomatology to one condition or the other without clinical and laboratory evidence.

Case 7.—Mrs. R. M., age 69, complained of pain beneath the lower third of the sternum, radiating to the left shoulder, of 10 to 15 minutes' duration. It came on especially after a large meal and had been present for four months. The blood pressure was from 170/90 to 200/100. The electrocardiogram gave suggestive evidence of myocardial damage. On roentgen study a large hiatus hernia 9 by 9 cm. was found. The hemoglobin level was 46 gm. per 100 cc., and the red cell count 4,000,000. Iron was given by mouth, and at the end of four months the hemoglobin level was 90 gm. per 100 cc., the red cell count 4,270,000. Appropriate medical management for hiatus hernia was also carried out. The patient has remained free of her heart pain since.

This is an instance in which bleeding associated with the hiatus hernia was apparently responsible for the anemia, and the anemia or hiatus hernia, or both, were responsible for her symptoms. Secondary anemia was first noted by Herrick[5c] as simulating angina pectoris. Several instances of hiatus hernia associated with anemia have been reported in the literature.

## COMMENT

The majority of recent observers agree that most hiatus hernias are acquired conditions resulting from a congenitally large or incompetent esophageal hiatus. The short esophagus type, which occurs very infrequently according to most observers, has been explained as shortening of the esophagus due to peptic ulceration, or to reflex spasm caused by stimulation of the vagus nerve. The

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[7] Harrington, S. W.: Diagnosis and Treatment of Various Types of Diaphragmatic Hernia, Am. J. Surg. **50**: 381, 1940.

[8] Jones, C. M.: Hiatus Esophageal Hernia, New England J. Med. **225**: 963, 1941.

[9] (*a*) Beckh, W., and Huffman, J.: The Importance of Diaphragmatic Hernia in the Differential Diagnosis of Coronary Artery Disease, Stanford M. Bull. **3**: 181, 1945. (*b*) Clark, W. E.: Gastrointestinal Conditions Simulating or Aggravating Cardiovascular Disease, J. A. M. A. **128**: 352 (June 2) 1945. (*c*) Linn, G. C.: Hiatus Hernia Confused with Coronary Thrombosis, New York State J. Med. **48**: 303, 1948. (*d*) Master, A. M.; Dack, S.; Stone, J., and Grishman, A.: Differential Diagnosis of Hiatus Hernia and Coronary Artery Disease, Arch. Surg. **58**: 428, 1949. (*e*) Pardee, H. E. B.: Cardiac Manifestations of Gastrointestinal Disease, Rev. Gastroenterol. **16**: 395, 1949. (*f*) Putney.[3] (*g*) Wyburn-Mason, R.: A New Conception of Angina Pectoris, Brit. M. J. **1**: 972, 1948.

[10] Gilbert, N. C.: Influence of Extrinsic Factors on the Coronary Flow and Clinical Course of Heart Disease, Bull. New York Acad. Med 83, 1942.

[11] Brick, I. B.: Clinical Significance of Hiatus Hernia, M Valley M. J. **71**: 2, 1949.

[12] Brick.[11] Evringham.[5b] (*a*) Kirklin, B. R.: Diaphragma J. J. Tennessee M. A. **41**: 279, 1948. (*b*) Mosler and Haas: matic und Angina pectoris, Deutsche med. Wchnschr. **59**: 1353, 1 W. R., and Ritvo, M.: Diaphragmatic (Hiatus ia, M Med. **229**: 191, 1943. (*d*) Root, J. C., and Hernia, Cleveland Clin. Qu 1

other types of hiatus hernias, in which the esophagus is of normal length, are the paraesophageal type, in which the stomach alone is herniated, and the sliding type, in which both the esophagus and the stomach are in the hernial sac. These two types are generally believed to constitute about one-third and two-thirds, respectively, of the total number of hiatus hernias. Symptoms appear as age increases and muscle loses its tone and stretch, and when, in many persons, increased amounts of intra-abdominal fat tend to increase intra-abdominal pressure.

Opinion is varied as to whether there are typical symptoms caused by esophageal hiatus hernia and whether by these a positive diagnosis can be made. As Putney[3] stated the matter, "The amount of mechanical interference with the function of the herniated viscus, the degree of diaphragmatic dysfunction, and the amount of increased intrathoracic pressure determine the type and number of complaints." Beckh and Huffman [9a] found that, from the standpoint of differential diagnosis of coronary artery disease, the size and type of hernia was of little or no importance, and that the symptomatology often varied inversely to the extent of herniation. Young[2] believed that an elderly patient who complained of epigastric or substernal distress at night, relieved after sitting up or getting up, probably had a hiatus hernia. The symptoms may be mainly epigastric or thoracic, the latter being substernal pain, referred to the left shoulder and arm, shortness of breath and difficulty in swallowing. A useful point in differentiating the symptoms of hiatus hernia from angina pectoris is the relief obtained in the former group by getting up and moving about. Even the electrocardiogram of a patient with hiatus hernia may suggest myocardial disease. Van Dellen[13] observed a patient with normal heart function as shown by an electrocardiogram when herniation was not present, but in which there was a typical coronary curve when herniation occurred. Master and his associates [9d] found that certain complications of hiatus hernia, such as anemia, vomiting, and dysentery, might precipitate acute coronary insufficiency. They emonstrated, however, by the use of the two step exerise and anoxemia tests, that, with few exceptions, hiatus hernia does not produce typical anginal pain on effort unless there is underlying coronary artery disease. Our own experience leads us to believe that x-ray study is warranted to substantiate the diagnosis of hiatus hernia. Special techniques are necessary for this purpose, and pictures taken with the patient in the Trendelenburg position are part of this procedure.

Much has been written concerning the cause of pain in hiatus hernia. Gilbert, LeRoy, and Fenn[14] demonstrated that distention of the stomach or peritoneal cavity in dogs caused a decrease in the blood flow through the circumflex branch of the left coronary artery. This they believed explains attacks of angina pectoris in patients with distended stomachs. Jones,[8] in a review of the mechanism of pain in both hiatus hernia and angina pectoris, concluded that over-distention of the lower end of the esophagus or the herniated portion of the stomach might be responsible for the production of anginal pain in any or all of its variations. Linn [9c] believed that pain from either the stomach or the heart might be referred, over the sympathetic and parasympathetic nervous systems, to the substernal and epigastric areas and to th neck and left clavicular regions. Master and his associ ates similarly pointed to the fact that the nerve pathway are much the same for the diaphragm, the lower end o the esophagus, and the stomach, so that reflexes arisin in any one of these regions might produce cardiac sign and affect the coronary circulation.

Apart from Gilbert's study mentiond above, I am n aware of any other data concerning the incidence of hi tus hernia in patients with angina pectoris. I have r viewed the records of 100 private patients in whom diagnosis of angina pectoris had been made and in who an intensive search for hiatus hernia by x-ray examin tion was undertaken. In 25 of these patients, 22 hiat hernias of the small type, 3 cm. or less in diameter and of the large type were found. Six of these patients ha been treated for angina pectoris by one or more phys cians. Their stories were such that we, having becom "hernia conscious," suspected the presence of such lesion, and it was demonstrated by roentgenograms. The were placed upon medical management, and their symp toms were relieved. A seventh patient was characterist of several reported in the literature. She first was thoug to have gallbladder disease. The removal of a norm gallbladder did not lessen her symptoms. She was ne treated for angina pectoris without relief of symptom The surgical repair of a large hernia relieved her entirel and for the past year she has stated that she "is cured

The group of seven patients with symptoms due on to hiatus hernias in this group of 100 is small, and yet is evident that this condition must be kept in mind whe a differential diagnosis of angina pectoris is being co sidered. Angina pectoris is a syndrome, a group of sym toms, due to several causes, some of which lie outside t heart altogether. Pheochromocytoma of the adren gland may simulate coronary heart disease exactly, a hiatus hernia is another such condition.

Some patients with hiatus hernia develop ulcer ( bleeding points within the herniated portion of the ston ach. Recognition of the anemia and appropriate medic treatment has resulted in relief of distress in one of o group of patients and of several reported in the literatur Harrington[7] noted anemia in 11% of 198 patients ope ated on for diaphragmatic hernia by him. Moersch[15] a Jackson and Jackson[16] have stressed endoscopic exam nations of the esophagus and herniated stomach f bleeding points. Brick[11] stated that there probably a ways is some mucosal disturbance in hiatus hernia th bleeds, regardless of the size of the hernia, and numero other observers[17] have noted bleeding and anemia ass ciated with hiatus hernia.

In summary, a brief note on treatment is warrante since a large percentage of these hernias respond to med

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13. Van Dellen: Unpublished data quoted by Gilbert.

14. Gilbert, N. C.; LeRoy, G. V., and Fenn, G. K.: Effect of Distention of Abdominal Viscera on Blood Flow in Circumflex Branch of Left Coronary Artery of Dog, Am. Heart J. **20**: 519, 1940.

15. Moersch, H. J.: Hiatal Hernia, Ann. Otol., Rhin. & Laryng. **47**: 754, 1938.

16. Jackson, C., and Jackson, C. L.: Peroral Gastroscopy Including Examination of Supradiaphragmatic Stomach, J. A. M. A. **104**: 269 (Jan. 26) 1935.

17. Putney.[3] Evringham.[5b] (*a*) Merendino, K. A.; Varco, R. L., and Wansteen, O. H.: Displacement of the Esophagus into a New Diaphragmatic e in the Repair of Para-Esophageal and Esophageal Hiatus Hernia, Surg. **120**: 185, 1949. (*b*) Olsen, A. M., and Harrington, S. W.: al Hiatal Hernias of the Short Esophagus Type: Etiologic and c Considerations, J. Thoracic Surg. **17**: 189, 1948.

cal management, and operative interference is not indicated until such management has been thoroughly tried. A bland diet of high caloric content, possibly given in from four to six feedings, is advisable. The patient should remain upright for two hours after eating. Sleeping at an elevation of 45 degrees will often prevent the distress at night. Antispasmodic drugs serve a useful purpose, especially atropine. Alkalis may also be helpful. Weight reduction should be effected in obese patients, and activities requiring bending and stooping eliminated. Reassurance to the patient that the symptoms are not due to heart disease is a great help in itself.

### SUMMARY AND CONCLUSIONS

A group of 100 private patients in whom a diagnosis of angina pectoris had been made were studied by x-ray examination to determine the presence of esophageal hiatus hernia. Twenty-five such hernias were found, 22 of the small type, 3 of the large. Six of this group of 25 patients with hiatus hernia had their symptoms relieved by medical management. A seventh with a typical picture of angina pectoris was relieved of all symptoms following surgical repair of a large hiatus hernia.

One patient, followed for a period of 14 years, had probably had first a hiatus hernia and later added coronary disease. This instance is cited to emphasize the point that both conditions may occur together. Another patient, complaining of pain beneath the lower third of the sternum that radiated to the left shoulder, had a large hiatus hernia 9 cm. in diameter and a hemoglobin level of 46 gm. per 100 cc. Bleeding points or ulceration within the hiatus hernia have been recorded in 11% of one group reported in the literature. In such instances correction of the anemia often relieves the symptoms.

In a control group of 957 patients who had x-ray study of the gastrointestinal tract in which a search for esophageal hiatus hernia was routinely part of the procedure, 78 (12.27%) were found to have hiatus hernia. The highest incidence reported in any other control group is 8.93%.[11]

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# EARLY DIAGNOSIS OF DIABETES MELLITUS

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The importance of early diagnosis and institution of treatment of diabetes mellitus cannot be overemphasized. As was pointed out recently,[1] "The insidious onset of the disease is the greatest handicap. . . . From every viewpoint—personal, community, economic and professional —it is urgent that unrecognized diabetes be discovered and medical care instituted."

There is experimental evidence [2] that pancreatic islet cells can regenerate and that early pathological changes in diabetes are reversible. The island cells of the diabetic pancreas are thought to be in a constant process of destruction and regeneration, with eventual dominance of the former. Thus the proper treatment of young persons with more resilient tissues may bring about appreciable regeneration of damaged island cells,[3] and the importance of prompt discovery of diabetes becomes apparent.

Unfortunately, although intensive management is most promising when begun at the onset of the disease,[4] the treatment of diabetes is now too often postponed beyond the theoretical period of reversibility. In addition, delay in diagnosis and treatment may be followed [5] by increased severity as measured by greater insulin requirements and by increased complications. Lack of diabetic control increases susceptibility to infection and acidosis. There is also evidence of an increased incidence of intercapillary glomerulosclerosis,[6] juvenile cataracts,[7] fatty livers and cirrhosis [8] in uncontrolled diabetes. It is true that there are many more diabetics in the age groups over 40, but the younger age groups must be thoroughly investigated if diabetes is to be detected early. Every effort should be made to discover these generally more labile diabetics before serious infection or an episode of coma forcibly brings the diagnosis to light.

For the purpose of early diabetes detection, a number of surveys have been made, and Diabetes Week and Diabetic Detection drives have been instituted. Surveys have varied in method and have been well summarized previously.[9] In addition to the known progressive increase in the diabetic population, the number of newly discovered diabetics has increased with more careful and extensive methods of detection. In a group of nearly 150,000 persons [10] between 16 and 24 years of age, who were examined by urinalysis, 0.12% were found to be diabetic. Other surveys in this age group have revealed an incidence varying from 0.2% to 0.6%.[11] In the entire Oxford, Mass., survey [9b] approximately 2% of the population (all age groups) were found to be diabetic.

Until fairly recently, criteria for the laboratory diagnosis of diabetes were not uniform. This may have been at least partially based on the past use of the Folin-Wu method of blood sugar determination. This method also measures nonglucose reducing substances, which may

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B. K. Milmore, M.D., United States Public Health Service, R. Ruderman, B.S., C. Mills, and G. Campbell, B.S., dietician, assisted in the preparation of this material.

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[3] Warren, S., and Root, H. F.: The Pathology of Dia *Special Reference to Pancreatic Regeneration,* Am. J. Path (July) 1925. Warren, S.: The Pathology of Diabetes Mellitus, delphia, Lea & Febiger, 1938, p. 219.

amount to as much as 78 mg. per 100 cc. in any single determination.[12] For this reason the Nelson photoelectric modification of the Somogyi method for the determination of "true" glucose is now considered one of the most reliable.[13]

In tests of large numbers of persons for the presence of diabetes, the problem exists concerning screening procedures that would give the most information and yet be practical for both the patients and examiners. Obviously, a complete glucose tolerance test is neither desirable nor necessary in every case.

A single urinalysis with negative results is of practically no diagnostic use in excluding diabetes. However, as more random urinalyses are done on the same patients a greater number of positive reactions are found.[5c] Diabetes exists in a third or more of adults who do have glycosuria,[14] but there is a great possibility of error in diagnosis of diabetes from glycosuria alone. Thus in one large series,[15] in only about half the urine specimens that were positive for reducing substance in amounts of 1% or less was diabetes the cause. In 97% of 200 specimens, in which the reducing substance exceeded 1%, the reducing substance was dextrose but even in some of these diabetes was excluded by oral glucose tolerance tests.

In another large survey[16] glycosuria was found in 2,991 out of 69,159 persons tested. From the results of 2,211 blood sugar determinations the diagnosis of diabetes was confirmed in 151 persons (known diabetics), and 148 new diabetics were discovered. Urine specimens in this survey were obtained one to three hours after a heavy carbohydrate meal. Thus, while urinalysis is simple and convenient, when used by itself there will be an excessive number of false positive and false negative reactions. This does not preclude its use in combination with other methods or by means of self-testing kits in the large group of persons who could not otherwise be screened by additional methods.

A fasting blood sugar level above the upper limit of normal is not always diagnostic of diabetes mellitus,[14] ince a number of conditions may elevate this level. Also, low fasting blood sugar values occur in true diabetes. Therefore, the fasting blood sugar alone may cause fals positive or false negative reactions,[4c] and, if a singl blood test is done, the fasting level is probably the lea valuable.

On the other hand, the time of the most useful sing determination has not been settled. Wilder[4c] prefers blood sugar test obtained two hours after the oral admi istration of a standard dose of dextrose. A high level this time indicates diminished ability to utilize carb hydrate.[12a] However, Joslin, Root, and Marble[13b] f that a greater number of incipient diabetics would discovered if the blood sugar were determined one h after glucose administration. This difference in opini may be based on the number of persons who might h false negative values at two hours as compared with th who would show false positive values at one hour, latter probably owing[4c] to an increased rate of abso tion of dextrose.

A recently described[14] blood sugar screening meth which is easy to perform, rapid, and accurate, has co into use and has greatly facilitated screening of la numbers of persons. This method utilizes various bl sugar screening levels, dependent on the concentrati of reagent tablets. The test may be done manually single specimens or by means of an ingenious appara the Hewson clinitron,® with which as many as 120 terminations may be made in one hour.

The interpretation of glucose tolerance tests is of difficult. Should patients be called diabetic who h either a high one-hour level accompanied by glycosu or a delayed return to normal, but not both? In one gr of such patients[17] (25) who were followed for over years, 29% eventually had diabetes. The incidence significantly greater in those who remained obese or w had a family history of diabetes. In another series[18] prediabetics (defined as persons with any abnormal vation of the blood sugar level, however slight, either f ing or before meals) who were followed for periods 1 to 25 years, 60% eventually had diabetes. It was th fore concluded that any impairment of carbohyd metabolism can never safely be ignored.

There is a possibility that corticotropin (ACTH) cortisone may prove useful in the detection of early s clinical diabetes mellitus,[19] but, at present, in most do ful cases a definite diagnosis of diabetes can be m only by long-term follow-up and repeated tests of bl and urine. Nevertheless, it would be important to in tute careful dietary measures early in an attempt to vent or postpone the development of frank diabete the group of prediabetics. This would be especially of overweight prediabetics or those with family histo of diabetes.

## PRESENT STUDY

Every new student at the University of South California is ordinarily given a complete physical ex ination, chest x-ray, and urinalysis. In order to disco a larger number of early cases of diabetes than is possi by such random urinalyses alone, it was decided to in tigate these students more thoroughly. This was con ered especially desirable in a university population, si in most cases students can be followed closely for at l four years, and probably for many more.

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(*a*) Wilkerson.[11] (*b*) Joslin, E. P.: Personal communication to the s.

Prior to physical examination each student was given a special form to complete. This completed form included a specific list of all food and drink consumed during and after the previous meal, the times of which were noted. The number of grams of carbohydrate was computed from this by a dietician. At the end of the routine examination a urine specimen was collected and a venous blood sample drawn. The times of these were noted. The student was then given an appointment to return in a fasting state on the next or a subsequent day. On his return he drank a lemon-flavored solution of 50 gm. of dextrose in 300 cc. of water. In exactly two hours a venous blood sample was drawn. No urine specimen was collected at this time because of limited facilities.

Because of the large number of urine specimens tested in a short time, they were done by means of the galatest® reagent. Those that were positive were reexamined quantitatively by the Somogyi [20] method. All blood specimens were examined by the Wilkerson-Heftmann method and with the use of the Hewson clinitron.® Each blood sample was initially processed at the 130 mg. per 100 cc. screening level. Those that were positive (over 130 mg. per 100 cc.) were reexamined at the same level and, if again positive, they were tested at the 180 mg. per 100 cc. screening level. We made numerous checks on the clinitron® and on the method itself by performing duplicate blood sugar determinations by the Somogyi-Nelson blood sugar method.

Persons who had a positive reaction in any phase of the screening process, that is, glycosuria or positive reactions to the first or second blood test at the 130 mg. per 100 cc. level, were recalled for the performance of a three-hour glucose tolerance test. This was done, after 100 gm. of glucose was given orally by the Nelson modification of the Somogyi ("true blood sugar") method. Urine specimens were examined concomitant with each blood sample. With this method the fasting and two-hour blood specimens give values normally 100 mg. per 100 cc. or less, and the highest point of the curve is normally 150 mg. per 100 cc. or less.[12a] Therefore, our criteria for diabetes was a blood sugar peak above 150 mg. per 100 cc. with a two-hour level above 100 mg. per 100 cc. Glycosuria was considered only as additional evidence of diabetes. A high fasting blood sugar level was not considered diagnostic unless the remainder of the curve also indicated diabetes. The criteria for a diagnosis of prediabetics was as defined above.[18] Our purpose in performing random blood sugar-screening tests (i. e., without controlled dietary preparation) in addition to the tests following administration of dextrose, was to determine whether a significant number of diabetics would be missed by performing this simpler procedure alone.

TABLE 1.—*Summary of Data, by Sex and Age, on Persons with Positive Reactions in Screening Tests*

| | Number of Patients | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Male | | | | | | Female | | | | | | Total, Both Sexes, All Ages |
| Ages, yr. | 15-24 | 25-34 | 35-44 | 45-54 | 55 and Over | Total | 15-24 | 25-34 | 35-44 | 45-54 | 55 and Over | Total | |
| Completed all screening tests | 1,374 | 951 | 114 | 19 | 3 | 2,461 | 479 | 111 | 59 | 15 | 1 | 665 | 3,132 |
| Screening urine test, positive reaction | 4 | 8 | 0 | 0 | 0 | 12 | 4 | 0 | 0 | 0 | 0 | 4 | 16 |
| 1st blood screening test, positive reaction | 6 | 3 | 1 | 0 | 0 | 10 | 6 * | 0 | 1 | 0 | 0 | 7 | 17 |
| 2nd blood screening test, positive reaction | 17 | 10 | 1 | 0 | 0 | 28 | 3 * | 0 | 1 | 1 | 0 | 5 | 33 |
| New diabetics | 4 | 4 | 0 | 1 | 0 | 9 | 2 | 0 | 1 | 0 | 0 | 3 | 12 |
| Known diabetics | 4 | 1 | 0 | 1 | 0 | 6 | 2 | 0 | 0 | 0 | 0 | 2 | 8 |
| Prediabetics | 2 | 4 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |

* One person had a positive reaction in both first and second tests.

TABLE 2.—*Correlation of Positive Reactions in Seventy-Seven Patients**

| | | | Screening Level 130 Mg./100 Cc. | | | Screening Level 180 Mg./100 Cc. | | | Urine and 130 Mg./100 Cc. | | Urine and 180 Mg./100 Cc. | | 130 Mg./100 Cc. and 180 Mg./100 Cc. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total Tested | Urine Screening Test | 1st Test | 2nd Test | Both 1st & 2nd Tests | 1st Test | 2nd Test | Both 1st & 2nd Tests | 1st Test | 2nd Test | 1st Test | 2nd Test | 1st Test | 2nd Test | All Reactions Positive |
| Positive reaction in screening test but negative glucose tolerance reaction | 51 | 2 | 17 | 33 | 1 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 |
| 3-hour glucose tolerance reaction (new diabetics) | 12 | 4 | 3 | 11 | 3 | 3 | 5 | 3 | 2 | 3 | 2 | 3 | 3 | 5 | 2 |
| Known diabetics | 8 | 7 | 7 | .. | .. | 6 | .. | .. | 7 | .. | 6 | .. | 6 | .. | 6 |
| Prediabetics | 6 | 3 | 2 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

* Where no figure appears, the reaction was not determined.

## RESULTS

Both uncontrolled and controlled screening tests were completed on 3,132 students. Twelve (0.38%) of these were newly discovered to have diabetes mellitus. There were eight (0.26%) previously known diabetics (table 1). Thus the total number of diabetics was 20 (0.64%). There were also six (0.19%) prediabetics.

Five persons had positive reactions in the first (uncontrolled) blood screening test and eight others showed

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positive reactions in the second (controlled) test who did not return for three-hour glucose tolerance tests. No one who had glycosuria failed to return for a glucose tolerance test. On the basis of the number of persons with positive reactions in each series of screening tests who did complete glucose tolerance tests and who proved to be diabetic or prediabetic, it might be expected that two additional diabetics and no additional prediabetics would have been found. Therefore, if these persons had returned for glucose tolerance tests, the expected incidence of newly discovered diabetics would be 0.45%, total diabetics 0.71%, and prediabetics 0.19%.

TABLE 3.—*Data on Persons Screened and Diabetics Found, by Race*

| Race | Persons Screened | Diabetics: Newly Discovered | Diabetics: Previously Known | Prediabetics |
|---|---|---|---|---|
| All races | 3,132 | 12 | 8 | 6 |
| White | 2,950 | 10 | 8 | 5 |
| Negro | 61 | 0 | 0 | 0 |
| Oriental | 99 | 2 | 0 | 1 |
| Other | 7 | 0 | 0 | 0 |
| Not stated | 15 | 0 | 0 | 0 |

TABLE 4.—*Persons Screened, Incidence of Diabetic Family History and Overweight**

| Family History of Diabetes and Overweight | Persons Screened |  | Positive Reaction in Screening Test with Negative Glucose Tolerance Reaction |  | New Diabetics |  | Known Diabetics |  | Prediabetics |  |
|---|---|---|---|---|---|---|---|---|---|---|
|  | No. | % | No. | % | No. | % | No. | % | No. | % |
| Total | 3,132 | 100.0 | 51 | 1.6 | 12 | 0.4 | 8 | 0.3 | 6 | 0.2 |
| Positive history |  |  |  |  |  |  |  |  |  |  |
| A. Progenitors, siblings or descendants | 204 | 6.5 | 6 | 11.8 | 1 | 8.3 | 2 | 25.0 | 0 | 0.0 |
| B. Other relatives | 71 | 2.3 | 1 | 2.0 | 1 | 8.3 | 0 | 0.0 | 1 | 16.7 |
| C. Combinations, A and B | 13 | 0.4 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Negative history | 2,843 | 90.8 | 43 | 84.3 | 10 | 83.3 | 6 | 75.0 | 5 | 83.3 |
| Unknown history | 1 | 0.0 | 1 | 2.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Overweight * | 1,289 | 41.1 | 20 | 39.2 | 8 | 66.7 | 2 | 25.0 | 3 | 50.0 |

* Methods of Conn, H. F., and others, editors: Current Therapy 1949: Latest Approved Methods of Treatment for The Practicing Physician, Ph delphia, W. B. Saunders Co., 1949, pp. 127-128.

It may be seen (table 2) that 11 (91.7%) of the 12 newly discovered diabetics had positive reactions at the 130 to 180 mg. per 100 cc. screening level in the second (controlled) series of tests. Only four (33.3%) diabetics would have been discovered by urinalysis alone, although one of these would have been missed if only blood screening tests had been done. Only three (25%) of the 12 diabetics would have been discovered by the performance of uncontrolled blood screening tests alone, none of whom would have been missed by the controlled blood tests. Urinalysis and uncontrolled and controlled blood screening tests had no advantages over one another in regard to discovering prediabetics. Each, by itself, was inadequate.

Age, sex, and race are summarized in tables 1 and 3. The findings concerning overweight and diabetic family history (table 4) are similar to previous findings of others. The number of diabetics discovered by uncontrolled testing was too small to permit valid determination of a relationship to prior carbohydrate intake. In any case (table 5) only one of the 16 who had glycosuria and ne of the 17 who had a positive reaction in the first od screening test were postcibal. Even if we made a theoretical correction for the number of persons whose previous dietary intake was undetermined, these numbers would not be much enlarged.

It might be of interest to note that the greatest proportion of false positive reactions occurred in the uncontrolled blood sugar screening series. The controlled series showed the next greatest proportion of false positive reactions and urinalysis the smallest, but urinalysis by itself failed to discover the majority of the new diabetics.

## COMMENT

It seems apparent that for efficient screening for the presence of diabetes there must be prior preparation of the subjects with controlled carbohydrate intake. Few diabetics would remain undetected by a procedure consisting of a single blood sugar determination two hour after ingestion of 50 gm. of dextrose, although ther would also be false positive reactions. If a urine specime were examined for sugar at the same time, the possibilit of diabetes remaining undiscovered would be very sma indeed. Apparently a blood sugar screening test eve combined with urinalysis, without prior controlled carb hydrate intake, would leave too many diabetics still u detected.

TABLE 5.—*Correlation of Positive Reactions with Previous Dietary Intake*

|  | Fasting * | Postcibal † | Not Determined ‡ | Tot |
|---|---|---|---|---|
| No. of persons screened | 2,314 | 402 | 416 | 3,13 |
| Urine positive in screening test | 13 | 1 | 2 | 1 |
| 1st blood screening test, positive reaction | 7 § | 1 | 9 | 1 |
| 2nd blood screening test, positive reaction | 18 § | 6 | 9 | 3 |
| New diabetics | 8 | 2 | 2 | 1 |
| Known diabetics | 7 | 0 | 1 |  |
| Prediabetics | 3 | 2 | 1 |  |

* Less than 50 gm. of carbohydrate ingested 30 minutes or longer ceding the test.

† More than 50 gm. of carbohydrate ingested 30 minutes to two ho preceding the test.

‡ Insufficient information to classify.

§ One person had a positive reaction in both first and second test

We plan to conduct another survey, testing both blo and urine one and two hours after ingestion of dextro in order to determine which of the two is the procedu of choice. To further facilitate and simplify the scree ing of large numbers of persons, it might also be of val to substitute for the glucose some type of generally ava able carbohydrate in standard amounts.

### SUMMARY AND CONCLUSION

The importance of early detection and treatment of diabetes mellitus is discussed. To detect early diabetes and in order to determine the relative value of uncontrolled and controlled screening procedures, a survey for diabetes was conducted among college students. Uncontrolled urine and blood tests were of comparatively little value in this series. A single blood sugar test performed two hours after ingestion of 50 gm. of dextrose is an efficient and simple screening method. A concomitant urinalysis might add to this efficiency. Persons with positive reactions in screening tests may subsequently be studied with glucose tolerance tests, preferably by a "true" blood sugar method. By this means an incidence of 0.45% newly discovered diabetics and of 0.71% total diabetics may be expected in a college age group.

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# OFFICE PRACTICE OF ANESTHESIA

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The title of this paper conveys the impression that administration of an anesthetic in the office has certain inherent attributes that it would not have elsewhere. This implication will be dispelled at the outset. Principles of good anesthesia are universal and totally independent of environment. Unfortunately, in the office the hazard is increased, and it is probably this fact alone that justifies the presentation of this material as a specialized subject worthy of consideration.

### OFFICE EQUIPMENT

From the standpoint of equipment, administration of anesthesia in the office is what we care to make it. Safety demands certain essential equipment as minimal. No anesthetic should ever be given without some means of administering oxygen under pressure. An elaborate gas machine is not necessary. The cost is prohibitive, and its apparent complexity appears formidable to those uninitiated in its use. A small cylinder of compressed oxygen connected to a well-fitting face mask with rebreathing bag attached provides a satisfactory means of inflating the lungs of a patient with apnea or respiratory depression. Less versatile but still effective is the Kreiselman resuscitator.[1] This is a compact, hand-operated bellows that normally makes use of air, though a connection is provided through which oxygen may be added.

A suction apparatus, either mechanical or water driven, is a necessity. It should be instantly available and provided with adequate connections and tips. The latter should include a rigid curved pharyngeal tip as well as a large caliber catheter. The need for suction usually arises suddenly, and the delay occasioned by setting it up and searching for connections and tips may be disastrous. If the operating table will not provide for the Trendelenburg position, some means should be thought out ahead of time by which the patient can be placed in this position quickly.

No special supply of drugs is needed, since the only drugs that are commonly required for office anesthesia are almost always present in any office. One exception is curare, the use of which will be discussed later. Notably unnecessary are recommendations for caffeine, coramine® (a 25% solution of nikethamide), pentylenetetrazole (metrazol®), and picrotoxin, representatives of the large group of analeptics and stimulants that are often mistakenly regarded as necessities in resuscitation and other anesthetic emergencies.

The condition and status of the patient and the circumstances under which the need for anesthesia arises constitute an important aspect of office anesthesia. Scheduled cases, if properly planned and carefully conducted, will cause little concern and constitute no greater risk in the well-equipped office than in a hospital. Of course there is always the danger that instructions regarding preoperative fasting and other necessary directions will be forgotten or ignored by uncooperative patients or sympathetic parents. A classical example of the latter is the solicitous mother who fed her son a large breakfast just before a proposed tonsillectomy because she "knew his throat would be sore and he would not be able to eat much for several days." Accidents and other emergencies in which the patient is brought to the office, like their counterpart in the hospital, provide disconcerting and dangerous predicaments that tax skill and demand the ultimate in ingenuity. Most patients will be victims of trauma, and the pain and excitement inherent in such situations bring about alterations in normal physiological processes that retard digestion, delay emptying of the stomach, and charge the blood stream with abnormally high levels of epinephrine. The exigency of the situation may tempt one to dispense with adequate preanesthetic survey and proper preparation, and thus disaster is courted.

### PREMEDICATION, PREPARATION, AND PLANNING

For anesthetic complications, prophylaxis is the best treatment, since irreparable damage may occur simultaneously with the appearance of the complication. Stomach contents may be inhaled with the first breath taken following regurgitation. Laryngospasm occurs with dramatic suddenness, and irreversible changes may take place before normal respiratory exchange can be restored. It takes but a short time to determine the preoperative status of the patient's circulatory and respiratory systems. A few questions will reveal a history of asthma or any serious illness that may affect the risk. The importance of learning the exact time and size of the last meal has already been alluded to. Delaying an anesthetic to check for removable dental appliances or

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From the Department of Anesthesiology, College of Medical
lists.

Read at the *Fifth Clinical Session* of the American Medical A
Los Angeles, Dec. 7, 1951.

[1] Kreiselman, J.: A New Resuscitation Apparatus, Anes
608-611 (Nov.) 1943.

loose deciduous teeth will pay dividends in prevention. The emptying time for the stomach is normally from 3½ to 4 hours, but undigested food may remain for as long as 6 to 10 hours, if trauma occurs shortly after eating. If there is doubt, an attempt to empty the stomach should be made before starting the anesthetic, with a large caliber stomach pump.

Premedication is an individual matter, and each case must be decided according to circumstances. Since few offices have space that can be devoted solely to recovery, it is desirable to administer as little narcotizing premedication as is compatible with the effect desired. If general anesthetics with any of the volatile liquids or thiopental (pentothal®) are used, adequate doses of atropine or scopolamine should be given beforehand. This will prevent excessive secretions, which become an annoyance with inhalation agents and a definite hazard with thiopental because of the danger of laryngospasm. Unless there is a definite indication, few patients given anesthetics in the office will require sedatives or narcotics; however, local anesthesia is accepted more readily by patients who have received a sedative. There is no drug commonly used for premedication that cannot be administered intravenously; in fact, the intravenous route is the most desirable and is certainly the most practical for office use. The desired effects are secured in a matter of minutes instead of one or two hours. Smaller doses yield satisfactory results with less prolongation of effect. These considerations, which are desirable under all circumstances, become almost mandatory for office anesthesia.

### AGENTS, TECHNIQUES, AND PROCEDURES

Thiopental is probably the agent that is the most commonly used in the office; with it the patient yields rapidly to a smooth, pleasant sleep. If we recognize that it possesses little or no analgesic properties, that it is a powerful respiratory depressant, that a serious laryngospasm is always a threat—if we respect its lethal potentialities l stay within its well-circumscribed sphere of useful- ss—we have a very acceptable agent for office anes- sia. Thiopental provides satisfactory conditions for rt procedures that require no relaxation and in which inful stimuli and other noxious reflexes are minimal. amination of tender and painful tissues, painful chang- of dressings, incision of boils and abscesses, orthopedic manipulations, and reduction of dislocations and minor fractures constitute procedures for which thiopental will produce sufficient loss of sensibility. Operations in and about the mouth, nose, and throat should not be done in the office unless the anesthetist is sufficiently trained to perform an endotracheal intubation and the office equipment is equal to that found in the average surgery. The danger lies in hypoxia, either from mechanical obstructions to the airway or from the more serious possibility of laryngospasm. The latter may be initiated by a few drops of pus, blood, or mucus. Spasm of the larynx may result also from anal or rectal surgical intervention, particularly if it involves dilatation of the sphincter.

The office administration of thiopental for dental extractions is relatively common.[2] This is a hazardous procedure, but, since the practice is probably here to stay, it will bear discussion. Risk is minimized if the depth of anesthesia is maintained at just below the level of consciousness. This degree of narcosis does not impair the normal cough reflex to any extent, and respiratory activity is near normal. In this condition the patient may wince and mumble but will not have any memory of the procedure. The average dose required for uncomplicated extraction of one or two teeth will be less than 0.5 gm. If a more extensive procedure is contemplated, it is no longer a legitimate office procedure. No one should administer thiopental under any circumstances unless prepared to deal promptly with laryngospasm or apnea. Laryngospasm constitutes almost the only condition connected with anesthesia in the office for which curare i indicated. The severest spasm may be interrupted by th intravenous administration of from 20 to 60 units o tubocurarine chloride or equivalent doses of decamethonium bromide (1 to 3 mg.). Since these drugs may produce a state of apnea, one must be prepared to maintai adequate pulmonary exchange until the patient is abl to resume that function. Patients of advanced age do no tolerate, nor do they require, large doses of thiopental When used in such patients, it should be diluted to les than the 2.5% solution that is commonly employed Children are more safely anesthetized with other agents Thiopental should not be administered to any patien who gives a history of asthma.

If we were left with only one agent for office use, ethe would probably be the wisest choice. The induction i slow and unpleasant, but it is preeminently safe. The incidence of vomiting is greater, but it usually occurs i light planes, while the patient still has laryngeal reflexes Respiration is stimulated rather than depressed. Th margin of safety is wide, and deep planes are not necessary for usual office procedures.

Vinyl ether (vinethene®) and ethyl chloride shoul be used only for induction preliminary to ether or fo procedures that can be completed in about that space o time. The temptation to bring patients into surgica planes of anesthesia with these agents must be resisted Complications will be rare if administration of ether i started as soon as the patient will tolerate it, thus overlapping the inducing agent. As soon as saturation wit ether is sufficient, the vinyl ether or ethyl chloride shoul be withdrawn. Since all three of these drugs are irritatin to mucous membranes, adequate doses of scopolamin or atropine should be given before they are used to insur a dry airway.

Generalized convulsions are occasionally seen durin the first few minutes of induction with vinyl ether. The are probably a manifestation of anoxia combined wit some effect of the drug on the cerebral cortex. They wil cease promptly when the agent is withdrawn and th lungs are inflated with oxygen. Both vinyl ether and ethy chloride are toxic agents and should be regarded as dangerous drugs. The pharmacologic action of ethyl chlorid on the heart is similar to that of chloroform but less in tense.[3] Vinyl ether should not be administered in the presence of liver disease.[3] The extreme volatility of ethyl chloride has led to its use as a local refrigerant. The practice is not harmful, but the anesthesia achieved is largely illusory.

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[2] Millhon, J. A.: Pentothal Sodium Anesthesia for Dental Surgery in ffice Practice: A Review of 3,434 Cases, Anesth. & Analg. 29: 163-168 ay-June) 1950. Thompson, E. C., and Sleeper, H. R.: General Anesthetic ods with Special Reference to Thiopental Sodium, J. Oral Surg. 8: (April) 1950.

Regional blocks and local infiltration are particularly suited to office use. Procaine is the least toxic of all local anesthetic agents, but the anesthesia is of short duration. This constitutes no serious drawback in office practice. The drug's action may be prolonged by adding epinephrine, and few side-reactions will be seen if concentrations of 1:100,000 are not exceeded. Epinephrine and other vasoconstrictors should be omitted in annular infiltrations of the digits. It is unnecessary to use procaine in solutions stronger than 1%, and higher concentrations only increase the hazard of toxic reactions. Less tissue reaction will be noticed if the agent is dissolved in isotonic sodium chloride solution instead of distilled water. The block should be made as painlessly as possible. Skin, fascia, and periosteum are sensitive tissues and should be approached gently. As the needle is advanced, small quantities of solution should be injected. Unless the needle is moving, no injection should be made without first aspirating to avoid intravascular injections.

The use of hyaluronidase has been advocated to increase the efficiency of regional anesthesia.[4] This drug brings about a wider diffusion of the anesthetic agent, and anesthesia occurs more rapidly; but it is no substitute for the knowledge of anatomy required for precise placement of needles in nerve blocks. Cuts and lacerations may be anesthetized preparatory to suturing by infiltrating the subdermal tissue throughout the circumference of the laceration. It may be argued that the pain of the needle that carries the suture will be no greater than will be produced by multiple injections of procaine. That might be true, except that puncture through the skin is unnecessary in this procedure. The anesthesia is produced by subcutaneous injections into the cut edges of the lacerated tissue. Such injections are painless. Stellate ganglion blocks and other blocks of the sympathetic trunk should not be performed in the office. The possibility of inadvertently producing spinal anesthesia or making intravascular injections constitutes too great a hazard.

### COMPLICATIONS AND RESUSCITATION

Wherever anesthesia is practiced emergencies will arise, and resuscitation will occasionally be necessary. Complications may suddenly appear and initiate a train of events that will terminate fatally if prompt and decisive action is not taken. If vomiting occurs, the patient should be placed immediately in the Trendelenburg position, and effective suctioning should be started. If neither can be done, the patient should be rolled over into the prone position with the head and shoulders hanging over the edge of the table; younger children can be held up by the heels. Before administration of the anesthetic is resumed, the pharynx should be thoroughly cleared of residual vomitus.

The problem of laryngospasm has already been mentioned. Obstructions from that cause or any other will result in acute and severe deprivation of oxygen. Immediate restoration of an airway and effective inflation of the lungs with oxygen are the only steps necessary. This is most efficiently achieved with the equipment described above, but, lacking such, mouth-to-mouth insufflation may to resorted to. Inadequate pulmonary exchange resulting from apnea or depressed respiration is treated in the same manner. Carbon dioxide is of no value and may even be harmful. The carbon dioxide level of the blood is already too high under these circumstances. Delaying the start of pulmonary ventilation while drugs are prepared and injected may cost the patient his life. There is no drug known that will initiate respiratory activity that has ceased. Coramine® may bring about a temporary improvement in depressed respiratory states, but the effect is transitory and the subsequent depression is more profound. Investigation has shown that the commonly used analeptics are valueless and may even be harmful in the presence of serious respiratory depression.[5]

### OFFICE PROCEDURES

No rules can be stated to govern the selection of the agent and technique for producing anesthesia in any given case. The decision depends on the circumstances, but attention is called to certain situations that are inherently hazardous. Bringing about states of unconsciousness under the conditions necessary for fluoroscopy is extremely dangerous. A nonexplosive agent being desirable, thiopental is likely to be chosen, but this drug should never be administered in a darkened room. If the procedure cannot be accomplished with local anesthesia, ether is the safest choice, in spite of explosion hazard. The patient can be brought into the second plane of anesthesia in another location and transported to the x-ray room at the last minute. The ether is left outside, and a damp towel is draped over the face. The anesthetist should place his cupped hand loosely over the patient's mouth under the towel to provide some breathing space and to maintain contact with the patient's respiratory activity.

Mortality statistics are difficult to obtain, but it is well recognized that the death rate from tonsillectomies is inordinately high. Maintaining an open airway, keeping the patient asleep, and aspirating blood from the pharynx is an assignment that challenges the skill of the best-trained anesthetist, yet the indifference and carelessness with which this procedure is often approached is appalling. This procedure is just as safely performed in the office as in a hospital, if the equipment is the same. Death is usually due to anoxia, which so frequently exists to an alarming degree from the beginning to the end of the procedure. The conditions are perfect for ventricular fibrillation. The patients are given premedication too late or not at all, and exaggerated excitement during induction floods the blood stream with high concentrations of epinephrine. When anoxia is superimposed on this, the pathologist will be called on to start looking for another "enlarged thymus" with which to absolve the anesthetist.

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3. Adriani, J.: The Pharmacology of Anesthetic Drugs: A Syllabus for Students and Clinicians, ed. 2, Springfield, Ill., Charles C Thomas, Publisher, 1942.

4. Moore, D. C.: An Evaluation of Hyaluronidase in Local and Nerve Block Analgesia: Review of 519 Cases, Anesthesiology **11:** 470-484 (July) 1950.

5. Mousel, L. H., and Essex, H. E.: An Experimental Stud Effects of Respiratory Stimulants in Animals Under Pentoth Anesthesia, Anesthesiology **2:** 272-280 (May) 1941.

Preliminary preparation for a tonsillectomy should include premedication given early enough to achieve the results intended. A barbiturate should be administered an hour and a half preoperatively and scopolamine or atropine a half hour before the anesthetic is started. Dosage depends on many factors but should be the right amount to bring the patient into a state of drowsy indifference. Induction should not be forced. A flow of oxygen under the mask will provide added protection. A patent airway should be secured early and maintained throughout the operation at any cost even though this may involve getting in the way of the surgeon. The suction should be used sufficiently to remove blood and secretions but not enough to limit ether concentrations. The passage of an endotracheal tube is a logical, but not always feasible procedure. Good anesthesia can be provided without it but requires constant struggle and eternal vigilance.

## CONCLUSION

It is readily apparent that one is not necessarily surrounded by an aura of security while administering an anesthetic for a minor office procedure. On the contrary, the minor character of the operation often beguiles the uninitiated into an indifferent approach and careless practices that invite sudden disaster. It is not always clear just where a "minor" surgical procedure becomes major, but it can be stated without equivocation that there is no such thing as a minor anesthetic procedure. The degree of security involved in any anesthetist's work is entirely dependent on the equipment he uses, the knowledge he possesses, and the practices he follows.

As previously pointed out, the criteria for safe anesthesia are the same wherever applied. The factors tha decide the outcome are variable, and not the least of thes is the ability and experience of the anesthetist. Every ac of an anesthetist carries his patient toward death. It is no unreasonable to expect that one who undertakes the re sponsibility of an anesthetist should be thoroughly famil iar with the action of the agents he is using, adequatel equipped to meet the complications that may arise, an effective in the art and mechanism of resuscitation. Th responsibilities of practicing anesthesiology in the offic cannot be regarded lightly.

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# TREATMENT OF INTRACTABLE PAIN OF VISCERAL ORIGIN

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*and*
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The treatment of pain in 12 patients with widely disseminated cancer by means of interruption of the associated autonomic nerve pathways is the subject of this paper. Unfortunately, the problem of the control of this relentless, increasing, often agonizing pain is all too frequent. Nothing is more demoralizing than continuous pain. The sufferer generally loses interest in personal appearance, in cleanliness, and in ordinary relations with his family and friends. He becomes a piteous object, restless, sleepless, ever seeking relief that does not come.

Drugs in the form of analgesics, particularly the morphine derivatives, have their place; however, in many cases, after pain has been relieved for a time with these drugs, it recurs with greater severity than ever. Morphine lessens physical pain, but there are certain painful cancerous conditions in which morphine affords very inadequate relief, and relief that lasts only a short time. In many cases the pains are so intense that increasingly large doses of the drug are soon necessary, although they are not well tolerated. Furthermore, these drugs do not alleviate the patient's dread of the return of his anguish as soon as the effect of the drug wears off.

The patients here presented suffered from only one of the types of pain that we sought to alleviate, with a high incidence of success, by the somewhat indirect attack on the autonomic nerve paths, as contrasted with the direct attack on the somatic, or central nervous system, nerve paths. This method has also proved effective against the pain of (1) causalgia, (2) traumatic arthritis, (3) atr phy of Sudeck, (4) ischemia in the extremities, chara terized by either intermittent claudication or continuo pain, (5) angina pectoris, (6) chronic pancreatitis, (7 renal colic, (8) labor and menstruation, and (9) herp zoster. Our present report is confined to the pain in la visceral cancer as controlled by operations on the aut nomic nervous system or by alcoholic injection of th system.

When a viscus is diseased, pain or tenderness is fr quently felt in the tissues overlying it approximately, th is, in the abdominal or chest wall, or in some remote par For example, pain is felt in the neck or shoulder in co ditions affecting the diaphragm, between the scapulas gastric disease, or in the region of the umbilicus in a pendicitis and over the precordium or in the left arm angina pectoris. It will be recalled that a given spin segment supplies a visceral area with autonomic ner fibers and a well delineated area of the skin (dermatome with somatic nerves. The two types of structure linked i this way through the cord may be some distance apa (for example, diaphragm and shoulder) or may be mo closely related (area of abdominal wall and an underl ing abdominal viscus). Mackenzie conceived the ide that afferent autonomic impulses arising in a disease organ, although of themselves incapable of arousing ar sensation, would on entering the cord set up an "irritab focus," with the result that cells accustomed to recei impulses from the corresponding somatic area were e cited. The impulses arising in these cells then travele along the usual paths to higher perceptive centers (tha

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amus) which projected or referred the sensation to the somatic area. In this way spontaneous pain in superficial structures remote from the diseased site was accounted for. Mackenzie spoke of these reactions as viscerosensory reflexes. Tenderness to touch, pressure, or light pinching of the skin (hyperesthesia and hyperalgesia) was ascribed to the impulses, which ordinarily would be below the threshold for pain, arriving in the segment rendered hyperexcitable as a result of impulses received from the diseased organ. In the case of the abdominal viscera, Mackenzie claimed that the area of tenderness in the abdominal wall remained fixed although the position of the diseased organ might vary, thus indicating the referred nature of the pain. He explained the rigidity (hypertonus) of muscle overlying a diseased organ—for example, the right rectus abdominis muscle in acute appendicitis—on a similar basis. Afferent impulses of normal intensity arising in the muscle proprioceptors, on arriving at the spinal centers, which had been rendered hyperexcitable by the receipt of abnormal visceral impulses, resulted in a reflex increase in tonus of the corresponding muscles. The referred motor reaction he spoke of as visceromotor reflex.

The concept of referred pain was supported by the work of Head, who mapped out the segmental distribution of the cutaneous nerves responsible for hyperesthesia in diseased states. This theory has gained wide acceptance.

True visceral pain, though denied by Mackenzie, also exists. In intestinal colic, for example, or in the pains of childbirth, pain is felt within the viscus itself. Also, in transection of the cord resulting in complete paralysis and anesthesia of the abdominal wall, intestinal pain is experienced, which obviously cannot be due to reference to somatic nerves. In such cases impulses must have reached the central nervous system along intact visceral (autonomic) afferents and either have entered the cord by the posterior roots above the point of transection or have been conveyed by the vagus. It has not been definitely demonstrated that the sensation of pain can be conveyed by the afferent fibers of the vagus, but it is possible, if not probable, that such is the case. Pain arising in the viscera is diffuse, poorly localized, and often of a dull, boring character. These features are characteristic of protopathic sensibility in general, and the viscera apparently are supplied only with fibers capable of conveying this type of sensation. The impulses responsible for this primitive type of sensation are believed to ascend no higher than the thalamus.

The surgery of pain, although its name is comparatively new, is in reality an old story. It is said that Maréchal, surgeon to the king, in the 17th century introduced neurotomy for facial neuralgia by cutting a branch of the facial nerve, but surgery for the relief of pain became practical only with the advent of the Listerian era. In this connection one calls to mind the name of Sir Victor Horsley, since the surgery of pain may be said to have originated with his operation on the gasserian ganglion for trigeminal neuralgia; Weir Mitchell, whose brilliant observations on causalgia just after the Civil War is still a classic; Harvey Cushing, the most prolific of neurosurgeons, whose work overshadows that of all others; Ruggi the Italian, to whom occurred the fruitful idea of visceral sympathectomy; Jonnesco and Gomoin, the Rumanians, who were the first to carry out the operation suggested by François Franck for angina pectoris; Walter Dandy, who devised the cerebellar approach for division of the fifth cranial nerve; and, finally, René Leriche.

The modern development of the surgery of pain really had its origin about the beginning of World War I in the problem presented by the distressing causalgia, with which Leriche and so many other surgeons had to deal; and for the great change which the last few years have brought about, whereby so many painful conditions can now be effectively alleviated or cured, René Leriche has been largely responsible. It is he who discovered the role of the sympathetic nervous system in the production and operative correction of these painful conditions. Acceptance of this new doctrine and its practical application were almost at once effective in completely transforming the lamentable scene.

In the relief of pain, experience has shown that severance of the somatic pathways along which pain is conducted has on the whole proved disappointing. For example, division of the posterior nerve roots of the spinal cord, division of the spinothalamic tract as in cordotomy, and the more recent cerebral lobotomy are unsatisfactory because they are ineffective in controlling pain or have as a consequence such complications as girdle pains, loss of sphincter control, and radical personality changes. Radiotherapy and hormone therapy have their chief, and sometimes marvelous, effect only in metastatic cancer of bone.

As stated above, we often fail to relieve pain by division of the somatic nerves, that is, the nerves of the central nervous system supplying the area from which the pain arises. Yet, if pain is present in an extremity, for example, and affects there the distribution of a cerebrospinal nerve, as in causalgia, it can be made to disappear if the condition of the peripheral circulation is altered, either by infiltration with procaine or by actual severance of the sympathetic fiber supplying the part. The anesthetizing of one system abolishes the pain that affects the other.

Appreciating the fact that one of the chief functions of the sympathetic nervous system is vasoconstriction, Leriche was the first to realize the extremely important role that vasoconstriction plays in the production of pain. That pain may be due to vasoconstriction is a fact beyond dispute, and this pain may be due to the effect of the deficient blood supply in the region of the nerve endings, the ischemia rendering them hyperirritable, or it may be due to the chemical changes in the tissues or organs supplied following an alteration in their circulation, certain hypotensive substances being elaborated which have a deleterious effect on the nerve endings, resulting in pain.

In patients with advanced malignant processes in the abdomen and pelvis, it is not surprising that such severe pain is so often present when we see the extensive invasion of the lymph nodes, which are often plastered against the vetebral column, often at the level of the celiac plexus, or actually compressing the nerv lumbar and sacral plexus.

Of these cases Leriche [1] writes:

> In 1924, in fact, it had occurred to me to extend the benefit of peri-arterial sympathectomy to those unhappy people by dealing with the lower end of the aorta and the iliac arteries. For this I carried out laparotomies, and what I observed was peculiarly instructive. I was able to observe that the pains were not due, as was generally thought, to compressions of nerve trunks, but to the irritation of adventitia of the pelvic vessels, as the result of th lymphangitic process, neoplastic or otherwise, which passed up alongside the vena cava and aorta, and continued in this way, along the lumbar ganglionic chains.
>
> For this condition I have performed peri-iliac and peri-aortic sympathectomy, resection of the presacral, sometimes also of the interior mesenteric plexus, and often that of a portion of the two lumbar chains.

Our experience has borne out the validity of Leriche's presumption that much of this pain is under the control of the sympathetic nervous system. What has been most surprising to us has been the fact that even in patients suffering pains that are transmitted down somatic nerve paths, such as the sciatic, we have many times, but not always, been able to relieve this pain also by interruption of the sympathetic nerve supply in the area.

It has been demonstrated that, by infiltration of the sympathetic trunk at the 7th, 8th, and 9th thoracic levels, the whole stomach and duodenum become insensitive; by infiltration at the 8th, 9th, and 10th thoracic levels, the gallbladder is likewise affected; by infiltration at the 12th thoracic and 1st lumbar levels, the kidneys are affected; and, by infiltration at the 1st and 2nd lumbar levels, the bladder is affected.

Whether the relief of pain is due to interruption of the viscerosensory reflexes as understood by Mackenzie in his concept of referred pain, or is due to interruption of true visceral pain fibers arising in the viscera, the pain being transmitted over the autonomic paths, or to an interruption of both paths, is not entirely settled.

## REPORT OF CASES

CASE 1.—J. W. V., male, white, aged 58, is of particular interest in that he is the first patient treated by us with alcoholic mpathetic block for visceral pain. He had been subjected to oval of bladder, prostate gland, and seminal vesicles for an filtrating carcinoma of the bladder and had intractable pain in the rectum and perineum.

On June 25, 1941, 4 cc. of 95% alcohol was injected into the lumbar sympathetic trunk bilaterally into the first and second lumbar ganglions. This injection relieved almost all of his pain. He stated that he felt as if he had been "released from prison." The third and fourth lumbar ganglions on each side were similarly injected on July 1, with still more relief of pain. He was discharged greatly relieved on July 2.

CASE 2.—J. S., white, male, aged 77, for eight months had had increasing pain in the back and in the epigastrium. He had lost over 20 lb. (9 kg.) during this period. Results of x-ray studies of gastrointestinal, biliary, and urinary tracts were normal. On Aug. 14, 1947, there was an indefinite tender mass in the epigastrium and some edema of the legs. Exploratory laparotomy on August 19 disclosed carcinoma of the body of the pancreas with extensive carcinomatosis. As soon as the abdominal incision had been closed the patient was turned on his side and 4 cc. of 95% alcohol was injected into the 9th, 10th, and 11th thoracic sympathetic ganglions bilaterally through a paravertebral approach.

On regaining consciousness the patient was completely relieved of the deep-seated pain in the back and upper part of the abdomen. This relief continued until the time of his death, four months later. He at times had some general abdominal discomfort, but never the former deep-seated agonizing pain.

CASE 3.—C. I. H., male, white, aged 54, three or four years previously had been given a diagnosis of chronic pancreatitis, a which time his gallbladder was drained. For two years he ha recurring brief episodes of pain in the epigastrium, severe enoug to require opiates. A subsequent exploratory operation is reported to have shown a very hard pancreas. Because of continuous severe pain, he was referred to us for relief. We injecte 4 cc. of 95% alcohol into the 11th and 12th thoracic sympatheti ganglions bilaterally. There was instant and sustained relief c all pain.

CASE 4.—P. W. L., male, white, aged 48, complained of seve intermittent low back pain, which had started in August, 194 One month later severe epigastric pain developed. The pain w steady and bore no relation to meals. He lost 25 lb. (11 kg.) ov a period of three months. Examination of the abdomen show that the liver was four fingerbreadths below the costal marg and somewhat tender and irregular. It was our impression th this patient had carcinoma of the body of the pancreas. On Oct ber 26, 10 cc. of 0.5% procaine was injected into the 10th a 12th thoracic ganglions bilaterally, with relief of abdominal a back pain. The next day 4 cc. of 95% alcohol was injected in the 10th and 12th thoracic ganglions and the first lumbar gangli bilaterally. He obtained almost complete relief of pain and aft ward needed only mild sedation; he complained at times of so soreness but had no acute pain. Jaundice later developed. He w discharged from the hospital without exploration of the abd men, but it was believed that he had carcinoma of the pancre with metastases.

CASE 5.—T. F. G., male, white, aged 55, for 10 months h had an aching pain in the left upper abdominal quadrant a to a lesser degree in the back. The pain was relentless, partic larly at night, and was the cause of almost daily vomiting. H was in obvious pain. Just to the left of the aorta in the left upp abdominal quadrant was a smooth, flattened mass, which me ured 5 by 7 cm. and which seemed to transmit the aortic p sation beneath.

He was subjected to operation on June 6, 1949. A hard nodul mass, the size of a grapefruit, was found involving the body a tail of the pancreas, with hard lymph nodes along the aorta e tending up to the diaphragm, with a large metastatic node in t liver and metastatic implants in the perineum. Biopsy of one these implants showed adenocarcinoma. The origin must ha been in the pancreas.

After the abdomen had been closed, 5 cc. of 95% alcohol w injected through a paravertebral approach into the 10th and 11 thoracic sympathetic ganglions on the left side and into the 11 ganglion on the right. The abdominal pain was almost complet relieved. All vomiting ceased, and he returned home quite co fortable on June 20.

CASE 6.—C. F., male, white, age 57, six weeks previous admission, on June 30, 1949, had noted severe intermittent p across the upper part of the abdomen associated with a wei loss of 24 lb. (11 kg.). Jaundice and clay-colored stools gradua appeared. The only positive finding on examination was a sligh enlarged tender liver and jaundice. At operation, on August the gallbladder was found to be distended and to contain seve stones. The common duct was greatly dilated. The head of pancreas was very hard. There were metastatic areas all over lesser curvature and posterior aspect of the stomach, and num ous metastases were present in the liver. Cholecystgastrosto was performed. On August 8 the thoracic sympathetic trunk injected bilaterally with 4 cc. of 95% alcohol at the level of 11th and 12th ganglions. His pain was immediately complet relieved. It returned, but to a much lesser degree, shortly bef his death, several months later.

CASE 7.—J. S. L., male, white, aged 65, was subjected to ploratory laparotomy by another surgeon in February, 1949, cause of symptoms of obstructive jaundice. At operation a la pancreas was found, a diagnosis of chronic pancreatitis ma and cholecystgastrostomy performed. Severe epigastric p radiating through to the back, was noted one month after ope tion, which gradually became more constant and "unbearabl He was referred to one of us in July, 1949, because of our ope tive interest and experience in tumors at the head of the pancreas. On exploratory laparotomy, on July 27, a stony hard mass 5 cm. in diameter was found at the head of the pancreas, together with metastases in the glands in the lesser peritoneal cavity and in the liver. Accordingly, after the abdomen had been closed, the patient was turned on the left side and 4 cc. of 95% alcohol was injected into the left and right sympathetic trunks at the level of the 11th and 12th thoracic ganglions on each side. The relief of pain was dramatic, and the patient was discharged from the hospital four days after operation.

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[1] Leriche, R.: The Surgery of Pain, translated and edited by A. Young, London, Baillière, Tindall & Cox, 1939, p. 8.

Case 8.—S. H. F., male, white, aged 53, was first seen on Aug. 4, 1947, complaining of pain in the lower part of the chest and the epigastrium of two months' duration. He had lost 34 lb. (15 kg.) in recent months. A large, tender, irregular mass was present in the upper part of the abdomen. There was absence of free acid on gastric analysis, and x-ray studies showed the presence of a deformed duodenal cap and evidence of outside pressure being exerted on the pylorus. Damage to the liver was severe, 40% of sulfobromophthalein being retained.

Peritoneoscopy on August 19 showed metastatic lesions to be present within the abdomen. As his pain remained unabated despite the use of stronger narcotics, a bilateral thoracic sympathetic block was performed on August 31, 4 cc. of 95% alcohol being injected into the 10th ganglion on each side.

*Summary of Cases*

| Patient | Age | Diagnosis | Location of Pain | Sight of Injection | Result |
|---|---|---|---|---|---|
| J. W. V. | 58 | Ca. of bladder with metastases........................... | Perineum and rectum | L1, L2, L3, L4 (R)<br>L1, L2, L3, L4 (L) | Greatly relieved |
| J. S. | 77 | Ca. body of pancreas with metastases.................... | Back and epigastrium | T9, T10, T11 (R)<br>T9, T10, T11 (L) | Greatly relieved |
| C. I. H. | 54 | Ca. body of pancreas...................................... | Epigastrium | T11, T12 (R)<br>T11, T12 (L) | Greatly relieved |
| P. W. L. | 48 | Ca. body of pancreas with metastases.................... | Epigastrium and back | T10, T12, L1 (R)<br>T10, T12, L1 (L) | Greatly relieved |
| T. F. G. | 55 | Ca. body of pancreas with metastases.................... | Left upper abdominal quadrant and back | T10, T11 (L)<br>T11 (R) | Greatly relieved |
| C. F. | 57 | Ca. head of pancreas with metastases.................... | Upper abdomen | T12, L1 (R)<br>T12, L1 (L) | Relieved |
| J. S. L. | 65 | Ca. head of pancreas with metastases.................... | Epigastrium and back | T11, T12 (R)<br>T11, T12 (L) | Greatly relieved |
| S. H. F. | 53 | Carcinomatosis ............................................ | Liver, chest and epigastrium | T10 (R)<br>T10 (L) | Relieved |
| J. H. M. | 50 | Hypernephroma with metastases.......................... | Shoulder and neck | T2 (L)<br>Thoracic sympathectomy (L) T1, T3 (L) | Greatly relieved |
| T. H. | 70 | Aneurysm of abdominal aorta; ca. of sigmoid.......... | Abdomen and perineum | T11, L1 (R)<br>T11 (L) | Greatly relieved |
| E. A. | 65 | Ca. of liver with metastases.............................. | Epigastrium, back, right shoulder | T6, T7, T8 (R)<br>T6, T7, T8 (L) | Greatly relieved |
| F. E. W. | 54 | Ca. of rectum with metastases............................ | Lower abdomen | T12, L2, L3 (R)<br>T12, L2, L3 (L) | Greatly relieved |

There followed considerable relief of pain, but the patient had by this time become so demoralized by the unremitting agony that he was reduced to a pitiable, whining state and complained of so many extraneous matters that it was at times difficult to evaluate the status of his pain except that without question he was more comfortable after the sympathetic injection. He lost ground rapidly and died on September 24.

Case 9.—J. H. M., male, white, aged 50, was admitted to the hospital on Oct. 4, 1949, because of persistent increasing severe pain in the left shoulder of 10 months' duration. He was also troubled with a dry, hacking cough. He had been treated for bursitis of the shoulder, and injections of a local anesthetic were made apparently into the shoulder joint, all without benefit. On examination he was complaining of moderately acute pain of the left shoulder and the left side of the neck. There were suppression of breath sounds and absence of tactile fremitus and also flatness on percussion over the lower half of the left side of the chest. X-ray examination on October 4 showed a quantity of fluid in the left lower pleural cavity but no lesion of the underlying lung. On October 12, we injected 1% procaine into the left thoracic sympathetic trunk at the second thoracic level. This injection gave prompt and dramatic relief of pain, and the patient stated that he was without pain for the first time in seven months. He was discharged 10 days later, still without pain.

He was readmitted to the hospital on October 31, because of recurrence of the pain in the left side of the neck and left shoulder. X-rays showed a few areas of increased density in the left upper lobe of the lung but no evidence of a tumor of the lung. He was subjected to left thoracotomy on November 9, at which time segments of the second and third ribs near the transverse process of the third vertebra were removed. The parietal pleura was opened. There were dozens of small peasized nodules on the parietal and visceral pleura on the left, obviously of a carcinomatous nature. The left thoracic sympathetic trunk was resected from below the third thoracic ganglion to the stellate ganglion. Pathological section showed a metastatic hypernephroma. The patient was discharged with almost complete relief of all pain on November 21.

Case 10.—T. H., male, white, aged 70, complained of severe pain in the abdomen and in the perineum which seemed to radiate into the small of the back and into the hypogastrium. This pain gradually increased in severity and spread all over the abdomen. He was in constant agony and took morphine regularly. One month after the first attack a mass appeared in the abdomen, just at the level of the umbilicus; this had increased in size. The site of maximal pain seemed to center around this mass. The pain was described as excruciating and continuous, and was relieved only by morphine.

The patient was emaciated and was suffering intense abdominal pain. There was a tender mass about the size of an orange, just to the left and at the level of the umbilicus, which seemed to show expansile pulsation. There was great tenderness in this area. With a barium enema a constricting lesion was seen low in the rectosigmoid. On exploratory laparotomy, Oct. 11, 1949, the bulging tumor was seen to occupy a large part of the left upper and lower abdominal quadrants and was found to be an aneurysm of the aorta extending from the renal veins down to the bifurcation. There was also obvious advanced carcinoma involving the sigmoid below the peritoneal reflection. Since there was no obstruction and since he was in such poor condition from the aneurysm, it was thought best not to subject him to an abdominoperineal resection of the rectum. Accordingly, the wound was closed. The patient was turned on his left side, and 5 cc. of 95% alcohol was injected into the 11th thoracic and first lumbar sympathetic ganglions on the right side and into the 11th thoracic ganglion on the left. The first lumbar ganglion on the left side could not be injected, since the needle entered the aneurysmal sac when this was attempted. After operation the patient had complete relief of his abdominal pain. He was discharged from the hospital on November 1.

On December 21 he was readmitted to the hospital. At this time there was evidence of lower intestinal obstruction, and colostomy was performed. The patient gradually became weaker and died on Jan. 6, 1950. At no time did he suffer from the old excruciating pain.

Case 11.—E. A., female, white, aged 65, in September, 1947, experienced sudden, severe pain in the epigastrium, radiating under both costal margins. By degrees the pain seemed [illegible] fined to the epigastrium and the back, but it sometimes radiated into the right shoulder blade and supraclavicular fossa. It was present almost constantly and was more intense when the patient was lying down. The abdomen was distended and was held tensely. There was tenderness in the epigastrium and all through the right upper quadrant of the abdomen.

At operation, on Jan. 7, 1948, a nodular enlargement of the right lobe of the liver was found with extensive intra-abdominal implants. Biopsy showed a mucus-forming adenocarcinoma. After the abdomen was closed, 5 cc. of 95% alcohol was injected through a paravertebral approach into the eighth thoracic sympathetic ganglion bilaterally. Great relief of pain was afforded, but, as there was some slight recurrence of the pain two weeks later, on January 24, we injected 5 cc. of alcohol through the same approach into the sixth and seventh thoracic ganglions bilaterally. Pain was then almost entirely abolished. She was discharged from the hospital on February 1. What pain she had was easily controlled by relatively mild sedation until she died, several months later.

Case 12.—F. E. W., male, white, aged 54, had been subjected to an abdominoperineal resection of the rectum in April, 1948, but shortly afterward began to have severe abdominal pain, particularly in the lower part of the abdomen and about the colostomy. On October 22, we injected 10 cc. of 0.5% procaine into the sympathetic trunk at the level of the 12th thoracic ganglion on each side. He had instantaneous relief of pain, this relief lasting five days. As the pain then returned, on October 27, we injected 2 cc. of 95% alcohol at the same sites. On October 31 he had a slight amount of pain and 4 cc. of 95% alcohol was injected on each side into the same ganglions. On November 2 he complained of generalized aching of the body, but there was no pronounced pain in back or abdomen. On November 11, since there was a slight degree of low abdominal pain, 4 cc. of alcohol was injected into the second and third lumbar ganglions on each side. This injection seemed to relieve him of all pain, but signs of intestinal obstruction developed and several days later he began to vomit. He died on December 5, at which time the abdomen was completely filled with carcinomatosis. It should be added that cobra venom at no time gave relief.

### SUMMARY

These 12 patients, with severe thoracic, abdominal, or
pelvic pain due to advanced malignant disease, were
greatly relieved by interruption of the sympathetic nerve
paths involved, through the use of alcoholic block or sur-
gical severance. Although the relief was not always com-
plete, or sustained even when at first complete, the im
provement was so striking that we believe that in all case
of this sort every effort should be made to determine (1
the sympathetic nerve paths involved in the area of pai
and (2) the most expeditious and least harmful manne
in which to carry out appropriate sympathetic denerva
tion. Sometimes it will be by operative extirpation an
sometimes by simple nerve block.

11 E. Chase St. (2) (Dr. Morrison).

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# CHLORAMPHENICOL IN TREATMENT OF TYPHOID IN CHINA

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Since chloramphenicol was first used in the treatment of typhoid in 1948 by Woodward,[1] many others have borne witness to the startling salutary effects of this drug whether given early or late in the course of the disease. A complete review of the literature on this subject would fill many pages, but such reports as seemed most pertinent are listed,[2] only four of these [3] coming from China.

The treatment carried out by these observers was begun on varying days of the disease, but with similar beneficial results, i. e., a drop in the temperature associated with clinical improvement in two to four days regardless of the severity of the disease. Nevertheless, some authors are of the opinion that recovery is delayed in those patients who are more critically ill. Nearly all of the reported cases were proved to be of typhoid by positive cultures of the blood, stool, or urine. In spite of almost immediate remissions, relapses were common. These seemed to occur later in those treated with chloramphenicol than in those who were used as controls; relapses in the treated patients fell between the 8th and 31st day of remission, with an average afebrile period of 18 days. Positive stool cultures were frequently found to persist long after clinical recovery. Smadel [2e] stated: "Chloramphenicol (chloromycetin®) should be administered in adequate amounts for more than eight days to patients acutely ill with typhoid if relapses of the disease are to be avoided. There appears to be little advantage in continuing the treatment for more than fourteen days."

These reports, where only a small number of patier
were reported to have received the drug for as long
eight days after the temperature was normal, bear o
this statement as relapses were frequent. The usual ther
peutic regimen was to give a preliminary dose of 50 m
per kilogram of body weight, followed by 250 mg. (o
capsule) every two hours until the temperature w
normal, and then continue the same dose every three
four hours for the following 8 to 12 days. No stateme
can be made as to the effect of chloramphenicol on su
complications as hemorrhage and perforation, as t
individual groups were too small.

Only El Ramli [21] mentioned any toxic reactions
chloramphenicol. These consisted of anorexia, naus
and vomiting, stomatitis, sore tongue, skin rash, a
apathy. Violini and co-workers [4] reported that chlorar
phenicol may cause granulocytopenia and erythroi
granulocytic maturation arrest in the bone marrow, wi
a reversal of such reactions on discontinuance of t
drug. This statement should be substantiated by bo
marrow studies on patients with typhoid undergoi
chloramphenicol therapy and others without it. Circul
tory collapse, which was attributed to the initial lar
dose, was reported by Molleret [2o] and Sédallian.[2p]

### TYPHOID IN CANTON PRIOR TO INTRODUCTION OF CHLORAMPHENICOL

The prevalence of typhoid in Canton can be attribut
to water contamination and inadequate sewage faciliti
The night soil is used as fertilizer for vegetable garden
In addition, unhygienic habits and ignorance lead to
high incidence of typhoid as well as of all alvine disease

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[1] Woodward, T. E., and others: Preliminary Report on the Beneficial Effect of Chloromycetin in the Treatment of Typhoid Fever, Ann. Int. Med. 29: 131, 1948. Woodward, T. E.: Chloromycetin and Aureomycin: Therapeutic Results, Ann. Int. Med. 31: 53, 1949.

Typhoid in China has always presented the same clinical picture as elsewhere in the world, with the same problems and potential hazards. A survey was made of 330 cases in the Hackett Medical Center, Canton, from January, 1944, to October, 1947. Cultures were not carried out, but the diagnosis was made on clinical grounds or on positive Widal reactions. As a basis for comparison with the present series, some information from these patients is given in brief. Out of these, 210 (64%) were discharged as cured, 55 (16%) were improved, 17 (5.4%) showed no change or left the hospital against advice, and 48 (14.6%) died. The highest mortality was in the third decade. Widal reactions were positive in 202 and negative in 80, not being carried out in the others. When the test was repeated there was usually a rising titer with recovery. Relapses occurred in 37 (11%) of those who remained in the hospital long enough for symptoms to become manifest. Intestinal hemorrhage occurred in 58, nearly half of whom died. The incidence of relapses and the death rate conform with reports from other countries at that time. Ten patients had perforation, with or without coexisting intestinal hemorrhage.

## PRESENT SERIES

In the medical department of this hospital, 74 patients with typhoid were treated with chloramphenicol from July, 1949, to October, 1950. In 31 of these the diagnosis was proved by positive blood or bone marrow culture. (Stool and urine cultures could not be done, owing to inadequate laboratory facilities.) Widal tests were done in all cases by the macroscopic technique. In 43 cases the diagnosis rested on a high, or occasionally rising, titer of Widal reactions and on the general clinical picture. In an area such as Canton, where typhoid is endemic, and often epidemic, and where other diseases that might produce a similar picture are rare, such a diagnosis from observation and routine examination by experienced observers was assumed to be correct. For this reason there are included here nine patients whose cultures and Widal reactions were negative but who presented unquestionable pictures of typhoid and whose temperatures fell with chloramphenicol therapy.

These patients came from all walks of life but generally were fairly well off, or they could not have afforded chloramphenicol. (It was necessary under the existing circumstances for all patients to purchase the drug personally from private sources outside the hospital.) All were Chinese with the exception of one American. The largest group was composed of high school students. Patients seen in the pediatric service are not included.

Estimating the onset of illness as coincident with that of subjective fever, 32 patients entered the hospital during the first week of illness (average, fifth day), 27 during the second week, and 13 during the third. In two the duration of fever was indefinite. Occasionally the onset was preceded by malaise and headache, but usually fever was the first presenting symptom. This was often ushered in by chills. It frequently fell each morning. Sometimes it was of low grade and patients carried on their daily tasks until the time of admission, when they were too ill to work. Constipation, which often accompanies typhoid, is feared by most Chinese; to combat this, herbal cathartics had been taken, which often resulted in severe diarrhea and dehydration, frequently with subsequent intestinal hemorrhage. This dehydration was intensified by withholding of fluids by mouth, or by vomiting. Such was often the sequence of events in those patients who were more critically ill.

It is difficult to assess the severity of the illness on admission simply from a clinical impression, but in general those with the highest temperature did not always appear to be the most acutely ill. Nine of the 31 with positive cultures and 17 of those without appeared to be severely ill. This was usually associated with dehydration due to diarrhea and restricted fluid intake. Most of these had been ill for more than the average of eight days for the group as a whole. Therefore, there did not seem to be any relation between the severity of the disease and occurrence of bacteremia.

Physical findings were nonspecific and did not differ in the two groups. Coated tongue, pharyngitis, paraumbilical tenderness and distention, and occasionally basal rales were the chief findings. Some had enlarged livers. The spleen was palpable in only 21, and only 6 presented demonstrable rose spots. Aside from the specific tests, results of laboratory examinations were not remarkable. The leukocyte counts tended to be lower in those whose illness had been present a long time. The Widal reactions failed to reveal any constant relationship between the duration of fever and the titer concentration. Three patients with bacteremia failed at any time to show a positive Widal reaction. Weil-Felix tests (OXK and OX-19) were carried out in all patients, and it is an interesting concomitant finding that many had positive low titer Weil-Felix reactions.

*Treatment with Chloramphenicol and Its Effects.*—Except in some of the acutely ill patients chloramphenicol was withheld for the first two or three days, until a

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2. (*a*) Chou, L. P., and Kan, H. T.: Chloromycetin Treated Typhoid Fever in Canton, Chung Shan I Pao, **4**:9, 1949. (*b*) Yang, S. Y., and Sung, C.: Aureomycin and Chloromycetin in the Treatment of Typhoid Fever; A Preliminary Report of Six Cases, Chinese M. J. **67**:584, 1949. (*c*) Douglas, A. D. M.: Typhoid Fever Treated with Chloromycetin, Lancet **2**:105, 1949. (*d*) Cook, A. T., and Marmion, D. E.: Chloromycetin in the Treatment of Typhoid Fever; 14 Cases Treated in the Middle East, Lancet **2**:975, 1949. (*e*) Smadel, J. E.; Woodward, T. E., and Bailey, C. A.: Relation of Relapses in Typhoid to the Duration of Chloramphenicol Therapy, J. A. M. A. **141**:129 (Sept. 10) 1949. (*f*) Foster, W. D., and Condon, R. J.: The Treatment of Acute Typhoid Fever with Cloromycetin, J. A. M. A. **141**:131 (Sept. 10) 1949. (*g*) Knight, V., and others: Antimicrobial Therapy in Typhoid, Arch. Int. Med. **85**:44, 1950. (*h*) Reilly, W. A., and Harrel, J. A. Jr.: Typhoid Fever in 14 Children Treated with Chloramphenicol, J. Pediat. **36**:440, 1950. (*i*) Jacobsen, L. Y., and Broderick, R. A.: Chloromycetin in the Treatment of Typhoid Fever, Ann. Int. Med. **32**:775, 1950. (*j*) Good, R. A., and Mackenzie, R. D.: Chloramphenicol in Typhoid Fever, Lancet **1**:611, 1950. (*k*) Rankin, A. L. K., and Grimble, A. S.: Treatment of Typhoid Fever with Chloramphenicol, Lancet **1**:615, 1950. (*l*) El Ramli, A. H.: Chloramphenicol in Typhoid Fever, Lancet **1**:618, 1950. (*m*) Edge, W.: Typhoid Fever Treated with Chloramphenicol; Review of 16 Cases, Lancet **1**:710, 1950. (*n*) Douglas, A. D. M.: Typhoid Fever Treated with Chloramphenicol: Development of Carrier State, Lancet **1**:858, 1950. (*o*) Molleret, P.: Usefulness and Hazards of the Treatment of Typhoid and Paratyphoid Fever with Chloramphenicol (Chloromycetin), Wien. klin. Wchnschr. **62**: 381, 1950. (*p*) Sédallian, P., and others: Chloramphenicol in the Treatment of Typhoid Fever, J. de méd. de Lyon. **734**:627, 1950. (*q*) Fu, C. K.: Chloromycetin in the Treatment of Typhoid Fever, Chinese M. J. **68**:297, 1950. (*r*) Kan, H. C.; Chung, Y. S., and Chow, L. P.: A Preliminary Report on the Treatment of Typhoid and Paratyphoid Fevers with Chloromycetin, Chinese M. J. **68**:303, 1950. (*s*) Smadel, J. E.; Bailey, C. A., and Lewthwaite, R.: Synthetic and Fermentation Type Chloramphenicol (Chloromycetin) in Typhoid Fever: Prevention of Relapses by Adequate Treatment, Ann. Int. Med. **33**:1, 1950.

3. Chow and Kan.[2a] Yang and Sung.[2b] Fu.[2q] Kan, Chung and Chow.[2r]

4. Volini, I. F., and others: Hemopoietic Changes During Administration of Chloramphenicol (Chloromycetin®), J. A. M. A. **142**:1333 (April 29) 1950.

report on the Widal and blood culture was received to verify the diagnosis. A fairly fixed regimen of treatment for all patients was followed. This consisted of a preliminary dose of 1.5 to 3 gm., with the amount estimated at approximately 50 mg. per kilogram. Thereafter 0.25 gm. was given every two hours until the temperature had fallen to normal, and the same amount repeated every three to four hours for varying periods thereafter, depending on how much of this drug the patients could afford to purchase from local drug shops. Inadequately prolonged treatment in this period almost invariably was due to the inability of the patients to afford sufficient amounts to insure against a relapse. (Many felt it was a waste of money to buy the drug after the temperature became normal.) All medication was given orally.

The average duration of fever after chloramphenicol therapy was begun averaged 3.5 days for the entire series. It seemed apparent that bacteremic and presumably nonbacteremic patients responded similarly to the treatment; all received the same therapeutic regimen. There was some indication that patients whose blood cultures were negative and who were treated earlier in the course of their illness responded more readily than did those in whom fever had been present for a longer period, i. e., over 12 days. Nevertheless, in patients who were acutely ill, although some had a prompt remission of fever after treatment, the average duration of fever after chloramphenicol therapy was started conformed to the average of the entire series. The type of response varied greatly, but often there was a 24 to 48 hour delay in response from the time therapy was begun, after which the temperature tended to fall abruptly in another 24 to 48 hours. About one-third of the patients presented this type of response. In approximately two-thirds there was a gradual drop after the first day of medication, so that a normal temperature was attained three to four days later. In these the duration of fever after the beginning of treatment was a little over the average of 3.5 days. In a few cases medication every two hours had to be continued for six days before a normal temperature was reached. In five bacteremic and eight nonbacteremic patients the temperature revealed wide variations each day, ranging from normal up to 103 or 105 F before and after chloramphenicol was given. In these the drug gradually decreased the excursions. Naturally, patients with less fever attained a normal temperature sooner. Even before this occurred signs of toxemia had largely abated, as had other symptoms already mentioned. After the patients were afebrile, 0.25 gm. was given every three to four hours for an average of 6.5 days for the entire series. Admittedly this is far too short a period to insure against relapses.

With four exceptions, all patients responded to chloramphenicol therapy, and two of these had been admitted in relapse. Three of the four had positive cultures. Two of these and the one without a positive culture died of severe toxemia within 24 hours after admission. In these the drug was given too late to take effect. The other patient in whom bacteremia was demonstrated and who failed to respond, continued to have fever despite adequate and prolonged medication. However, after an elapse of several weeks, the temperature gradually fell to normal. Excluding these four, the duration of treatment and the total dosage per person was essentially the same for the two groups of patients. It happened that those with negative cultures actually received on the average 1 gm. more of the drug per person than did those with positive cultures.

## COMPLICATIONS

*1. Intestinal Hemorrhage.*—The possibility of bleeding has always been one of the chief causes for concern in this disease. To avoid this in the past, patients have been kept on all kinds of low residue diets, which deprived the tissues of much needed nutrition, with a result that for months after recovery they were weak and underweight. Despite such diets, hemorrhage was frequent. In our old series hemorrhage occurred in 17.4% of the 330 patients, nearly half of whom died from toxemia and exsanguination. This is in accord with other reports of that time.

With the advent of chloramphenicol the incidence of hemorrhage has been reduced. Among the 362 patients reviewed in the literature, there were only 12 instances of intestinal bleeding. In this series of 74 patients, 7 had hemorrhage. Three of them had positive blood cultures. All except one had been ill for over 10 days on admission. With one exception, in each case, when hemorrhage occurred on the day of admission, it had begun before the patient entered the hospital. In only one patient did it persist after treatment had been given. This occurred in a man who had been feverish for 23 days on admission, who died within a day. In another bleeding occurred during a relapse after chloramphenicol therapy.

An explanation of this complication in China was obvious in most cases. The habit of taking Chinese herbal cathartics for the constipation which so often accompanies typhoid seemed to be the main cause. In other patients, continued pursuit of daily activities probably was the reason. Less frequently, intestinal parasites, such as Fasciolopsis, which existed in one of our patients, may have traumatized the ulcers and resulted in bleeding. In almost every instance these patients had premonitory distention and more than the usual abdominal pain with diarrhea.

*2. Perforation.*—Perforation was diagnosed in 10 of the old series of 330 and was frequently associated with hemorrhage. In the 362 chloramphenicol-treated patients reviewed in the literature only seven were said to have had perforation, and six of these were in El Ramli's [21] series of 200. Only one of our series had what may have been perforation. This was a 37-year-old postman who had been ill for two weeks on admission and who had bloody diarrhea. Chloramphenicol was given 84 hours after admission, and shortly thereafter he went into shock and exhibited signs of perforation. Because of his critical condition, he was treated conservatively with parenteral fluids and penicillin, chloramphenicol being the only thing given by mouth. Under this regimen his peritonitis remained localized and gradually healed, with recovery. There is some doubt as to whether this was a case of true perforation, for free air was never demonstrated by the fluoroscope in the peritoneal cavity. It is possible this may have been a perforation of a peritoneal lymph node, which, although a very rare complication, might present such a picture.

3. *Shock.*—Shock is present in some form in nearly all seriously ill patients. It is a result of toxemia and/or dehydration, often with hemorrhage. In the more severely ill there is also distention, which is so frequently associated with central nervous system manifestations, such as delirium. While chloramphenicol will go far in relieving the toxic element, there still remains the hazard of dehydration. Undoubtedly some of the deaths in this series could have been prevented by more adequate parenteral therapy.

4. *Other Complications.*—Bronchitis, pneumonia, and genitourinary infections have been greatly reduced with the advent of chloramphenicol. Only in patients admitted late in the course of the illness, when such complications have already developed, do these present a problem. In these instances penicillin should be administered. Bronchitis was present in a number of our patients on admission but cleared up without additional treatment when chloramphenicol was given. Pneumonia was not diagnosed in any of our patients.

### TYPHOID AND PREGNANCY

Typhoid often leads to expulsion of a fetus, especially during the third trimester. In the original series of 330, there is no record of the total number of pregnant women, but there are reports of seven who aborted, two of whom died. We found no information from other observers on this problem. It seemed that in the present series pregnant women were more toxic than others. Four women, from two to seven months pregnant, had negative blood cultures, and three of these aborted either before or during chloramphenicol treatment. Another with a positive blood culture, who was seven months pregnant, entered the hospital on the 18th day of her illness in severe toxemia and shock following diarrhea. She died on her first hospital day, just after receiving her first dose of chloramphenicol.

### RELAPSES AND CARRIER STATES

The chief concerns in the use of chloramphenicol in the treatment of typhoid are the prevention of relapses and adequate sterilization of the feces and urine. It is generally believed that relapses usually occur 5 to 10 days after the temperature has reached normal in 5% to 15% of all patients. In the series of 330, there were 37 (11%) who relapsed one (?) to 22 days after remission, with an average onset on the 10th day. It has been stated that chloramphenicol prolongs the period of remission before the relapse. Of those patients treated with this antibiotic who were reported in the literature, there were 77 who relapsed, the average afebrile period being 17 days. This includes the period of treatment after remission. This would support the statement that chloramphenicol postpones the time of relapse. Experience has shown that the drug should be continued for at least eight days after the temperature has returned to normal if relapses are to be prevented, but this may be a low limit. The natural duration of relapses in patients who have had chloramphenicol is still a matter of conjecture, because in each case, almost without exception, chloramphenicol therapy has been repeated. The results are often even more dramatic than in the first attack. It is possible that such relapses, if untreated, would have been of shorter duration than in patients who have not had the drug.

Six of the present series, three with and three without bacteremia, relapsed before their discharge. If it is true that chloramphenicol tends to prolong the afebrile period before relapse, any statement on the incidence of relapses which may be drawn from this series is open to question, as nearly all of the patients in this series left the hospital before the extreme relapse limit of 22 days. Most of them insisted on discharge before they had been afebrile two weeks. It is therefore possible that any of these may have relapsed after discharge, in which case it would not have become known to my co-workers and me. Good nursing care and bed rest during hospitalization were of no avail in preventing relapses. An analysis of these six cases reveals that five of them received chloramphenicol fairly late in the course of their disease, i. e., after the 10th day of fever; five were more acutely ill than the average, their temperatures being higher and dehydration being more pronounced; five others were of teen age; and in five the relapses occurred from the 8th to the 15th day of remission, 4 to 10 days after chloramphenicol therapy had been discontinued. The total doses for the first attack given these patients varied from 9 to 23.5 gm. Therefore, the amount of drug and the duration of therapy were both below what have been stated to be optimal. There was no difference in the characteristics of relapses, nor in their response to treatment, in the bacteremic and nonbacteremic groups. Only one patient had profuse hemorrhage and shock during relapse. It is possible that inadequate chloramphenicol treatment may result in an increase in relapse rate over and above what would be expected in untreated patients. As for the second liability from the use of chloramphenicol, namely, a continuance of the presence of Salmonella typhosa in the stool and urine, too little has been reported regarding follow-up cultures to permit any definite conclusions. But, from those authors that have done so, it would seem safe to infer that clinical cure does not in any way insure that such patients may not prove to be carriers. Much more work is needed to clarify this. Unfortunately our laboratory was unable to carry out stool and urine cultures.

### FATALITIES

In addition to the usual hazards of hemorrhage and perforation, profound toxemia may be a cause of death. Of the 48 patients who died in the original series of 330, 26 had hemorrhage with or without some other complicating factor, such as perforation. In 17 others pneumonia and/or perforation were present, and five died from toxemia without any other specific cause. Of the 362 cases reviewed in the literature, there were 20 reported deaths, 13 of which were in the series of 200 reported by El Ramli,[21] a death rate of 5.4% for all the reported cases.

Three of the 74 patients of this series died while in the hospital, a death date of 4%. The first was a 21-year-old woman, five months pregnant, with a positive blood culture. Chloramphenicol was delayed five days while she was obtaining money for its purchase. She suddenly aborted, with profuse uterine hemorrhage, which, added to marked toxemia, resulted in circulatory failure and distention, with further embarrassment to the respiration already affected by pulmonary edema. Diarrhea increased her dehydration. Chloramphenicol given at this late date was completely ineffective, and she died the same day. The second patient, an 18-year-old boy, also with a positive culture, had marked dehydration on admission from diarrhea which should have been treated with adequate venoclyses. Distention and shock resulted in almost immediate death before chloramphenicol could take effect. Both of these patients had been ill for over 15 days on admission.

The third patient, a 24-year-old man with a negative culture, had been ill for 23 days on admission. He entered the hospital with tarry diarrhea following herbal catharsis and was mentally dull and exhausted. Basal rales were present, the spleen was markedly enlarged, and the leukocyte count was only 2,500. Chloramphenicol was withheld four days, during which time he became more severely ill and delirious. Transfusions and venoclyses failed to relieve the shock. When chloramphenicol was given, on the fifth day, he was already beyond relief, and he died having received only 4 gm.

It is possible that we could have saved the lives of two of these three patients if chloramphenicol had been given immediately on admission, without waiting for laboratory proof of the diagnosis or for the patient to obtain the drug personally. In addition, we failed to give adequate parenteral therapy to combat the dehydration and shock.

Past experience has proved that patients who are more toxic often have distention and, if delirium accompanies this, the prognosis is very poor. The same may be said especially for women who abort. The above three cases bear out this opinion; all three patients came in after two weeks of illness, all had diarrhea, and two had carried on their customary activities during much of their preadmission febrile periods. As usual, permission for necropsy was not obtained, as in most of China a strong prejudice exists against any postmortem examination.

### CHLORAMPHENICOL TOXICITY

Mention has already been made of the toxic effects noted by El Ramli,[21] Violini and co-workers,[4] Molleret,[20] and Sèdallian.[2p] In none of our patients was it necessary to discontinue the drug because of untoward reactions. One patient vomited on one occasion; this was attributed to the drug. In several cases where repeated white cell counts were performed, there was a slight drop in the total count, but this may have been due to the disease rather than the medication. It would seem that the only way to demonstrate the suppressive action of chloramphenicol on leukopoiesis would be to study the bone marrow as well as the peripheral blood in typhoid with and without chloramphenicol therapy. Several patients exhibited some evidence of mental apathy during treatment, but here again this may have been due to the fever itself. In none of the patients was any evidence found to support the assumption that the initial large dose produced circulatory failure.

### COMMENT

Contrary to expectation, many patients had positive blood cultures after the first week of fever; on the other hand, 43 of the 74 patients showed no growth even though the same technique was followed and was carried out by the same examiner. In some cases blood or bone marrow culture was repeated for verification. It is our present plan to carry out cultures of both the peripheral blood and the bone marrow simultaneously on admission, in the belief that organisms may be harbored in the bone marrow after they have disappeared from th circulation.

It would be expected, in a city where typhoid vaccin has not been in general use throughout the populatio that a positive Widal test would be fairly indicative of pre-existing typhoid infection. But the opposite seem to be true, in that many patients with proved typhoi continued to present a negative Widal reaction in th as well as in the earlier series. The reason for this r mains obscure. Many patients also showed a positi titer for paratyphoid A and B, but in lower concentr tions. It would be interesting to have a survey of t Widal reactions among a cross section of the populatio as many may have abortive infections giving a positi reaction although they have no definite history of t disease. Speculation as to the low titers to the Weil-Fe reaction is interesting, as typhus has not been very pre alent in Canton. (Recently scrub typhus has become problem, probably brought down from the north.)

A full understanding of the action of chloramphenic is still to be attained. Much work should be done to d termine the blood concentration necessary for optim results during the febrile period and that necessary prevent relapses during the remission period, and wheth such a concentration removes the organisms from t intestinal tract. Reports on the concentration of chlora phenicol in the blood show wide variations even thou the clinical results are apparently the same. Possibly t recent plan of giving two doses daily of synthetic chlo amphenicol may prove as beneficial as the old two-ho dose schedule. Much more needs to be learned regardi the rate at which the ulcers heal in patients undergoi therapy with this antibiotic. Smadel and co-workers mention that time is required for healing of lesions, b just how much time is still an open question. Presumat this means a need for the drug long after the time of mission of fever.

Experience has shown the importance of anticipati shock in seriously ill patients, especially in those w have suffered from diarrhea and deprivation of fluids mouth before admission. This hazard is much grea in patients who have been ill for longer periods. T necessity for administering to such patients lar amounts of glucose and saline by vein cannot be ove emphasized. No doubt several of the deaths in this seri could have been avoided if chloramphenicol had be given immediately to these critically ill patients wh they were admitted, without several days' delay for dia nostic proofs from the laboratory. Any patient wi distention, especially if it is associated with deliriu is in great need of immediate treatment if a fatal ou come is to be averted. Patients with typhoid should receive a high caloric and high vitamin diet, but one with fairly low residue, if a prolonged convalescence with protracted weakness is to be avoided.

## SUMMARY AND CONCLUSIONS

A brief review of some of the literature on chloramphenicol in the treatment of typhoid is presented. For clarification of the present series, statistics on a previous series of 330 inpatients with typhoid seen between January, 1944, and October, 1947, are given for comparison. In the series of 74 reported in this paper, the clinical findings and response to chloramphenicol were essentially the same for the 31 bacteremic patients as for those whose blood culture was negative. Three of the 74 patients died; all of them entered the hospital late in the course of their illness. One patient left the hospital in severe shock. There remained 70 who responded favorably to treatment. In no case did chloramphenicol have to be discontinued because of toxic reaction.

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# USE OF METHADONE-SCOPOLAMINE IN OBSTETRIC ANALGESIA

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*and*
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The past decade has witnessed two major trends in pain relief for labor and delivery: "natural childbirth" techniques and conduction (nerve block) anesthesia. The improvement wrought generally in the practice of obstetric analgesia as a result of the attention directed toward each of these popular movements has been outstanding, but neither has provided a completely adequate solution to the age old problem of woman's "poena magna."

Frank appraisal of natural childbirth training reveals that it accomplishes no measurable diminution in the actual intensity of labor pains,[1] nor is it the "drugless method" glorified in lay publications. In a review of 1,000 consecutive cases by the Yale group,[2] no less than 73.3% of nulliparas experiencing spontaneous deliveries required "*not over* 125 mg. of Demerol, or one dose of another agent." In less than 20% of even these uncomplicated labors was no analgesic used. Saddle block spinal anesthesia, most widely applicable of current regional block techniques for obstetric use, lends itself best to the practice of the average physician when employed only for terminal labor, delivery, and repair.[3] Pudendal block and local infiltration are even more limited in scope.[4] It becomes obvious, therefore, that, even if one were to incorporate into what might be considered a balanced or rational plan [5] of obstetric analgesia the natural childbirth methods for the discomforts of the early first stage of labor, and minimal dosage low spinal (or pudendal block) anesthesia for the episiotomy and delivery, the problem of definitive analgesia for the phase of active cervical dilatation still exists.

In their suggestion that diacetylmorphine (heroin) or a combination of morphine and meperidine (demerol®) hydrochloride represent (dolorimetrically) the closest approach to true analgesia for the pain of labor, Javert and Hardy [1] have put on a scientific basis a fact long appreciated by obstetricians: to wit, a true narcotic drug must play an important role in any pharmacological method intended to provide adequate obstetric analgesia-amnesia.

Concomitant with an increased interest in newer synthetic narcotics throughout the medical profession, developing in no small degree as a result of an international situation which may at any time seriously limit the availability of opium derivatives, we have thought it apropos to investigate more adequately than has been reported previously the obstetric potentialities and limitations of the most promising of these agents, methadone. Up to the present time more than 3,000 patients on our service have received methadone hydrochloride during labor. The present report is based on results in 1,000 consecutive cases in this series.

The pharmacology of methadone (6-dimethylamine-4,4-diphenyl-3-heptanone) has been fully explored by Chen [6] and others. The almost purely analgesic and minimally sedative properties of this agent militate against its success in labor when it is employed alone. The lack of enthusiasm for methadone as an obstetric analgesic evidenced in earlier reports of very small series of patients [7] is probably attributable to this fact.

## MATERIAL AND METHODS

From the more than 3,000 patients on the delivery service of the Chicago Lying-In Hospital who have received methadone for relief from pain of labor, concurrent recording and subsequent analysis of data has been carried out in the first 2,000 consecutive cases. The initial group of 1,000 cases served as an "orientation pro-

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Methadone hydrochloride used in this study was provided by Abbott Laboratories, North Chicago, Ill.

From the Department of Obstetrics and Gynecology, University of Chicago and Chicago Lying-In Hospital.

[1] Javert, C. T., and Hardy, J. D.: Influence of Analgesics on Pain Intensity During Labor, Anesthesiology **12:** 189, 1951.

[2] Thoms, H., and Wyatt, R. H.: One Thousand Consecutive Deliveries Under a Training for Childbirth Program, Am. J. Obst. & Gynec. **61:** 205, 1951.

[3] Andros, G. J., and Priddle, H. D.: Saddle-Block Anesthesia at Chicago Lying-In Hospital, Anes. & Anal. **29:** 330, 1950. Miller, R. L., and Andros, G. J.: Effect of Spinal Anesthesia upon Uterine Motility During Labor, to be published. Andros, G. J., and Priddle, H. D.: The Obstetric Limitations of "Saddle-Block" Spinal Anesthesia, to be published.

[4] Taylor, E. S., and Jack, W. W.: Critical Analysis of Local Anesthesia as an Agent for the Relief of Pain in Vaginal Delivery, Am. J. Obst. & Gynec. **58:** 275, 1949.

[5] Andros, G. J.: Present-Day Practices in Obstetric Analgesia, Ohio State M. J. **47:** 228, 1951.

[6] Chen, K. K.: Pharmacology of Methadone and Related Compounds, Ann. New York Acad. Sc. **51:** 83, 1948.

[7] Prescott, F., and Ransom, S. G.: Amidone (Miadone) as an Obstetric Analgesic: Trial in 62 Cases, Lancet **2:** 501, 1947. Lund, C. J.: Newer Obstetric Analgesics, Am. J. Obst. & Gynec. **55:** 1007, 1948. Troxil, E. B.: Clinical Evaluation of Analgesic Methadone, J. A. M. A. **136:** 920 (April 3) 1948.

ject." The patients in this series were given various amounts of methadone hydrochloride, ranging from 5 mg. to 20 mg. Both the oral and subcutaneous routes of administration were employed, and the agent was used alone or in combination with scopolamine and/or barbiturates.

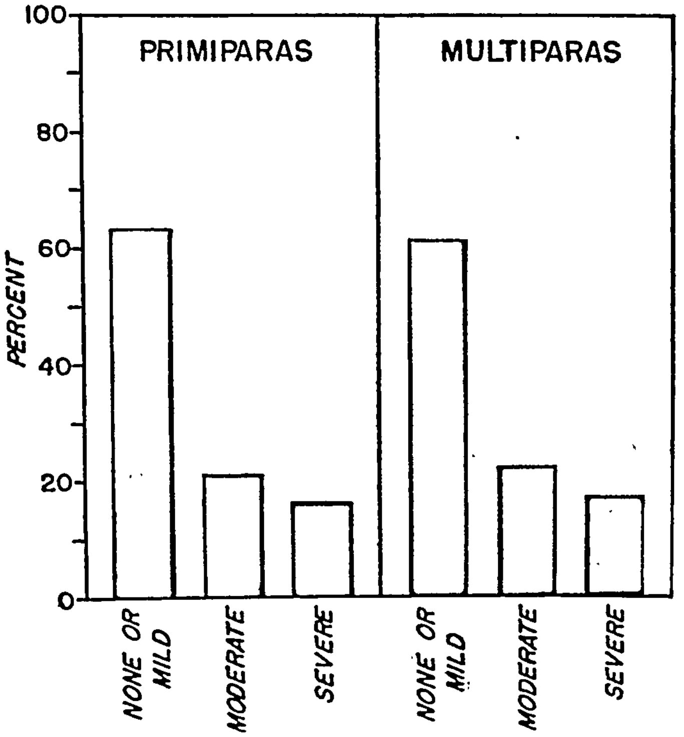

Fig. 1.—Degree of analgesia as judged by restlessness during uterine contractions.

Methadone alone in 10 mg. doses created in the majority of patients satisfactory analgesia during actual uterine contractions. There was, on the other hand, very little desire to relax or doze between contractions and but negligible amnesia for preceding "labor pains." Since the process of labor is composed of intermittent and progressively more severe episodes of pain, successful systemic analgesia requires an agent or agents whose pharmacologic effect is to produce "mental relaxation" and/or feeling of well-being between painful episodes. Failure to provide such an effect, regardless of adequate relief for the preceding episode, results in progressive tension and apprehension directed toward the forthcoming painful contraction. This fear for what is to come soon "breaks through" any purely analgesic effect, with the result that the patient does not experience adequate relief.

On the basis of our experience in this group, we felt that a combination of 10 mg. of methadone hydrochloride and 0.4 to 0.5 mg. (1/150 to 1/130 grains) of scopolamine hydrobromide administered subcutaneously held greatest promise as a satisfactory method for producing analgesia-amnesia in the laboring woman. Accordingly, the second group of 1,000 patients were medicated in this fashion; the data herein presented are based on an analysis of results in this latter series.

Of the 494 primiparas, 1.3% received a second dose of 10 mg. of methadone and 0.6% a repeat injection of scopolamine. Comparable figures for the 506 multiparas were 0.3% and 0.2%, respectively. In addition, 49 primiparas and 43 multiparas were given 0.2 gm. of amobarbital sodium orally prior to the methadone-scopolamine injection.

The characteristics of the ideal drug (or combination of drugs) for obstetric analgesia-amnesia set forth by Fluhmann[8] more than a decade ago hold true today: the agent must alleviate suffering in the parturient, not interfere with the progress of labor, and be safe for the baby

While the "perfect" agent for every patient's labo still remains to be discovered, these criteria serve adequately as standards in the study of any new preparatio In the analysis of our data on methadone and scopol mine in combination, we have emphasized these co siderations.

### EFFECT ON MOTHER

The degree of alleviation of suffering has been bas on two objective criteria: restlessness with pains (co tractions) and sedation between pains. In addition these observations made by numerous assistant resid physicians personally attending the patients in labor b having no further part in the preparation of this study subjective opinion as to the success of the pain relief w obtained in a majority of the cases through direct qu tioning of the patient. All interviews were carried out a time longer than 24 hours after delivery by a single phy cian who was not responsible for subsequent interpre tion of any data.

Patients who exhibit little or no restlessness dur contractions in active, progressive labor may be describ as objectively experiencing no severe pain. On this ba it may be seen that 64% of primiparas and 62% multiparas were maintained in a comfortable state du contractions by methadone and scopolamine (fig. Moderate restlessness (fair relief) was noted in 22% both multiparas and primiparas, while 16% and 14 respectively, were severely restless (definitely unc fortable) with each pain.

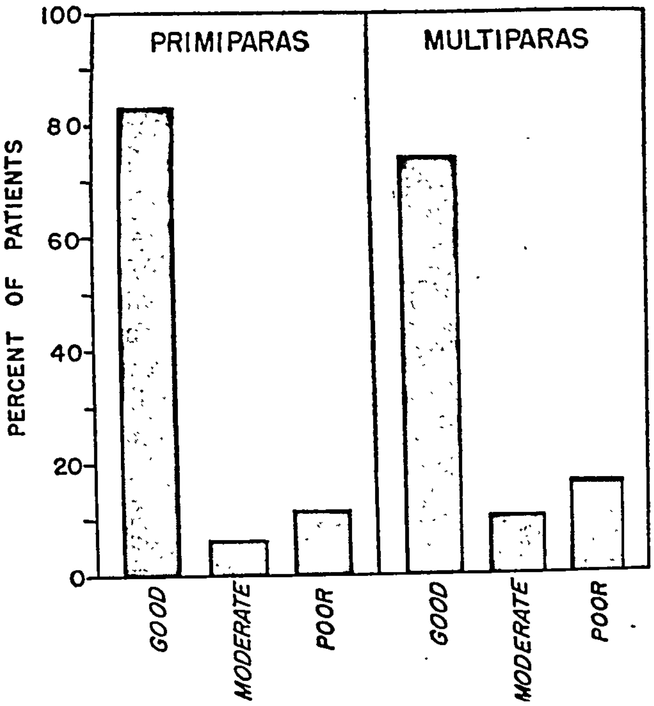

Fig. 2.—Sedation between pains achieved by methadone with sc amine (1,000 patients).

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8. Fluhmann, C. F.: Anesthesia and Analgesia in Obstetrics, West. J. Surg. 48: 361, 1940.

Good sedation between episodes of pain may be indicative not only of drug effectiveness to a degree that the patient is simply quiet during the "free" interval of uterine relaxation but, in addition, that the preceding contraction was not productive of such conscious discomfort as to create in the parturient marked apprehension and/or definite physical manifestations of anxiety in anticipation of the next episode. As might be expected, in both primiparas and multiparas, sedation between pains was successfully accomplished more frequently (83% and 74% of patients) than was lack of restlessness with contractions (fig. 2).

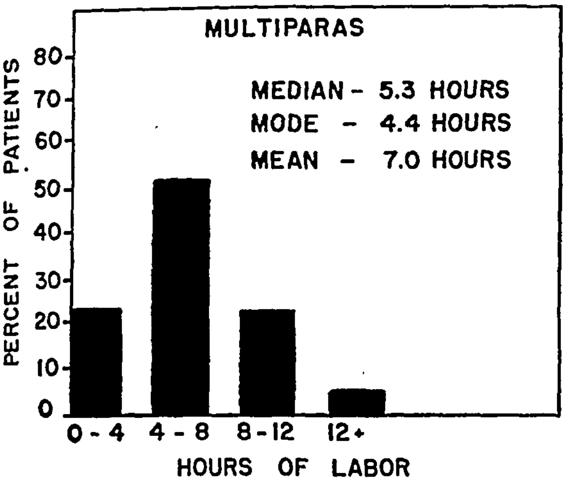

Fig. 3.—Duration of labor in multiparas; only 27% were in labor over eight hours.

So far as the mother's own evaluation of the comfort created for her—as present in her conscious memory at some time later than 24 hours after delivery—47% of all the patients interviewed were completely satisfied with pain relief during labor, and 35% said they had a moderate degree of analgesia (fair relief). The remaining 18% were not at all satisfied, stating they had received little benefit from the injected medications. Thus, the proportion of patients reporting "good" effect subjectively was approximately 15% less than the group demonstrating little or no restlessness during contractions, i. e., "good" objective effect. There was, however, little difference in the proportions of mothers who were deemed to have had a truly "poor" result by objective (15%) and subjective (18%) methods of evaluation. This good correlation in the calculation of the incidence of "drug failures" by objective and subjective means is undoubtedly significant. It may be assumed, therefore, that 82% to 85% of the patients in our series did receive at least a moderate degree of relief from pain.

## EFFECT ON LABOR

The effect of any analgesic drug on labor is a major factor in its usefulness. Since normal labor varies in tempo and duration, this effect is more difficult to evaluate than the pain-relieving qualities of the agent or the likelihood of its producing fetal narcosis. We have employed two approaches, one statistical and the other qualitatively pharmacological, in evaluating the effect of 10 mg. of methadone hydrochloride (with scopolamine) on uterine function in human labor.

In the first instance we have noted the duration of labor (total) in each case, and have charted the spread over the series in four-hour groups, for multiparas and primiparas separately (fig. 3 and 4). It is a fair assumption that any depressing influence potent enough to alter the activity of the laboring uterus would become evident in groups of cases as large as ours (506 and 494) by increasing durations of labor to degrees of statistical significance. In our series over 73% of multiparas delivered in less than eight hours, while 72% of primiparas delivered in less than 12 hours. It would seem fair to conclude that the use of methadone and scopolamine in average therapeutic amounts (usually one dose) does not prolong labor.

During the process of obtaining our study series of 1,000 labors, we have sought to observe directly in a limited number of patients the qualitative effects of the agents on patterns of uterine activity by means of a modified Fenning tocograph.[9] Our studies on 21 patients in various degrees of active labor warrant the following observations: (*a*) A single dose of 10 mg. of methadone given subcutaneously had no obvious effect on the pattern of contractions. (*b*) A second dose in one and one-half to two hours caused temporary decrease in intensity of contractions in a minority of cases. (*c*) A single intravenous injection of 10 mg. resulted in a similar "slowing of labor" in but one of five patients (fig. 5).

Since all the patients in our series received 0.4 to 0.5 mg. of scopolamine in conjunction with methadone, the possible influence of the former drug on uterine activity must be considered. There are no tocographic studies of the effect of scopolamine itself on the contractions of the human uterus in labor known to us. Kirschbaum [10] and Snyder [11] state that scopolamine has no direct effect on the labor mechanism. Among five patients studied by us before and after administration of 0.5% of scopolamine and 10 mg. of methadone, there was one instance of de-

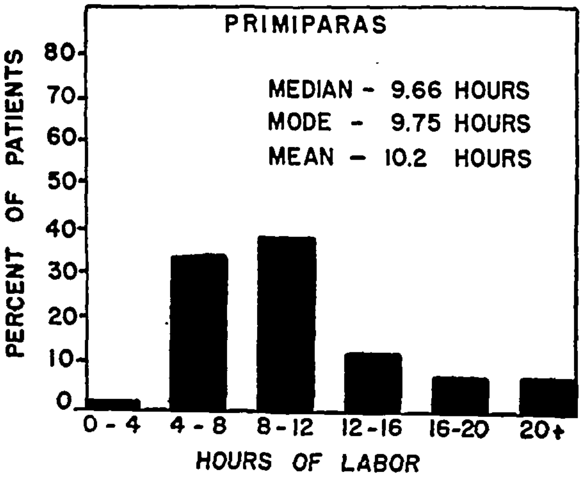

Fig. 4.—Duration of labor in primiparas; 72% delivered in less than 12 hours.

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[9] Fenning, C.: Mechanical Ink Writing Recorder Suitable for Recording Uterine Motility During Pregnancy and Labor, Am. J. Obst. & Gynec. 40: 330, 1940.

[10] Kirschbaum, H. M.: Scopolamine in Obstetrics, Am. J. Obst. & Gynec. 44: 664, 1942.

[11] Snyder, F. F.: Obstetric Analgesia and Anesthesia, Philadelphia, W. B. Saunders Company, 1949, p. 264.

terioration of uterine activity (fig. 6), lasting for 75 minutes and followed by rapid progress subsequently.

We may conclude that methadone has no significant effect on labor, though, as with morphine [12] and meperidine hydrochloride [13] in comparable dosage, there are individual patient variations.

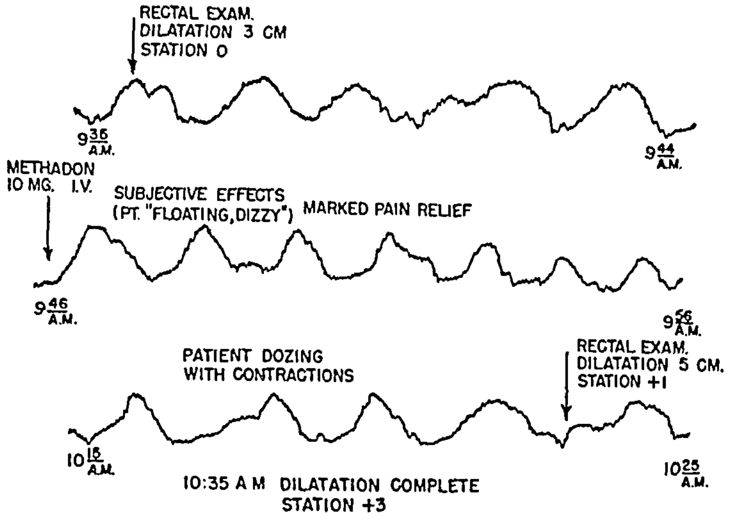


Fig. 5.—Lack of deleterious effect of 10 mg. of methadone given intravenously on uterine motility in a patient delivered at 40 weeks (para 2, gravida 4), with occipitodextratransverse presentation. Membranes ruptured at 8:15 a. m., and labor began at 8.45 a. m.

## EFFECT ON FETUS

In earlier reports on the use of methadone in obstetrics, a major disadvantage alluded to has been a notable depressing influence on the fetal respiratory center. Barnes [14] was the first to evaluate carefully this alleged effect quantitatively, comparing methadone with morphine and meperidine (and later nisentil® [15] [1 cc. contains 40 mg. of *dl*-α-1,3-dimethyl-4-phenyl-4-propionoxypiperidine hydrochloride]). On the basis of 25 carefully conducted "clinical experiments" with 15 mg. of methadone administered two hours or less before delivery, there was a "significant" delay in first respiration and first lusty cry, as compared with 30 control cases without medication. When the time interval was greater than two hours, little depressant effect was noted. When the dose of methadone was reduced to 10 mg. (the amount we have used with scopolamine), it was "without significant effect" on fetal respiration, regardless of time intervals prior to delivery. Methadone was thought to be a greater respiratory depressant than is meperidine, "under the conditions of this experiment."

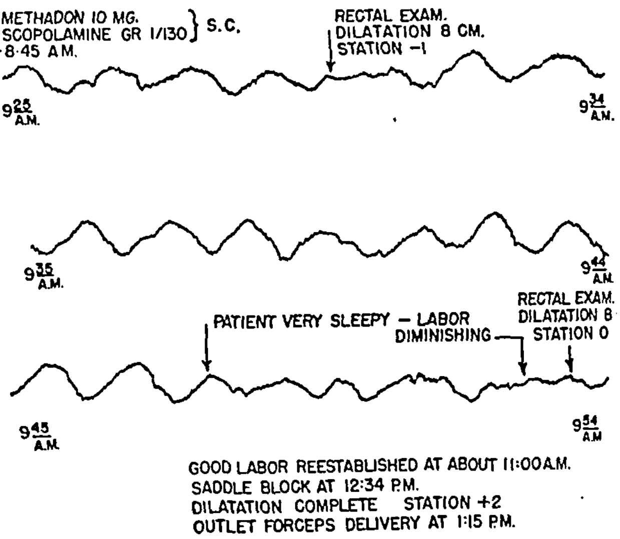
Times of first fetal breath in our series have been noted accurately and separated into two groups, according to the type of anesthesia used for delivery (fig. 7). Saddle-block low spinal anesthesia was employed 560 times, while 440 patients received inhalation anesthesia. In all but 23 of the general anesthesia cases, ethylene was the agent of choice; ether was used 12 times and cyclopropane 11 times.

The benefits of regional anesthesia to the fetuses wit respect to their ability to breathe spontaneously at birt are obviously evident in our results. Ninety-two per cen of babies born of multiparas and 83% of babies of primi parous mothers took their first breath in one minute less. That these infants were completely free of narcos can be appreciated from our finding that all emitted lusty cry in one minute or less.

Among the babies delivered under inhalation anesth sia, 73% from multiparas and 69% from primipar began to breathe in one minute or less. All but 1% these babies likewise cried within the same period time. It would appear, therefore, that 14% of the pri paras' infants and 19% of the multiparas' infants w prevented from "immediate" breathing and crying by *addition of general* anesthesia to the methadone and s polamine analgesia.

From these data, certain conclusions of major clini significance can be drawn. The fetus that is unusu susceptible to hypoxia, and those subjected to acute chronic oxygen deficiency during or before labor, sho be protected at delivery from respiratory depression herent in the use of inhalation anesthesia, most part larly when a systemic analgesic of the narcotic type been employed. In such a case delivery should be car out under local or regional block.

Prematurity is a prime factor in rendering the fe poorly able to withstand pharmacological narcosis. these small babies above all should the obstetrician av using narcotics and/or barbiturates plus general ai thesia. Nonfetal anoxic anoxemia from certain compl tions during labor may so inhibit the respiratory cer of even a sturdy term fetus that otherwise relatively mi degrees of depression from anesthesia may be the de ing factor in the production of severe asphyxia at bi



GOOD LABOR REESTABLISHED AT ABOUT 11:00 A.M.
SADDLE BLOCK AT 12:34 P.M.
DILATATION COMPLETE STATION +2
OUTLET FORCEPS DELIVERY AT 1:15 P.M.

Fig. 6.—Pattern of fundal uterine contractions in single test pa "slowed" by 10 mg. of methadone with scopolamine.

When DeLee admonished attendants of any labo woman to listen carefully to the fetal heart every five 10 minutes during the second stage, he was emphasi the grave possibilities facing the fetus during this pe of labor. Second stage anoxia (recognized by fetal bra cardia) may be due to, or aggravated by, cord compl tions, progressive placental separation, or trauma to fetal head, particularly if the "perineal" phase is p longed. In such a situation, previous medication again may become a significant factor. At any rate, delivery should be expedited, without the use of general anesthesia if possible.

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[12] Murphy, D. P.: Uterine Contractility in Pregnancy; A Study of the Contractions of Pregnancy and Labor Under Normal and Experimental Conditions, Philadelphia, J. P. Lippincott Company, 1947, p. 118.

[13] Abbas, T. M.: The Importance of External Hysterography in the Study of Uterine Activity, Edinburgh M. J. 55: 423, 1948.

[14] Barnes, A. C.; Hapke, F. B., and Holzaepfel, J. H.: The Fetal Respiratory Depressant Effect of Methadone, Health Center J. Ohio State U. 1: 18, 1947.

[15] Hapke, F. B., and Barnes, A. C.: Obstetric Use and Effect on Fetal Respiration of Nisentil, Am. J. Obst. & Gynec. 58: 799, 1949.

Newborn infants who do not breathe within five minutes after delivery invariably create considerable concern in the mind of the obstetrician. In the presence of good muscular tone and strong heart beat, part of this concern for the infant may be obviated if one is adept with a tracheal catheter and uses it to provide oxygen until such time as the baby's respiratory mechanism assumes normal activity. Among the babies delivered with the mother under general anesthesia, 15.2% failed to breathe spontaneously during the first five minutes of life. Proportionately less than one-third as many saddle-block babies, 4.6%, fell into this category. All these babies were maintained with tracheal catheter oxygenation until capable of spontaneous breathing.

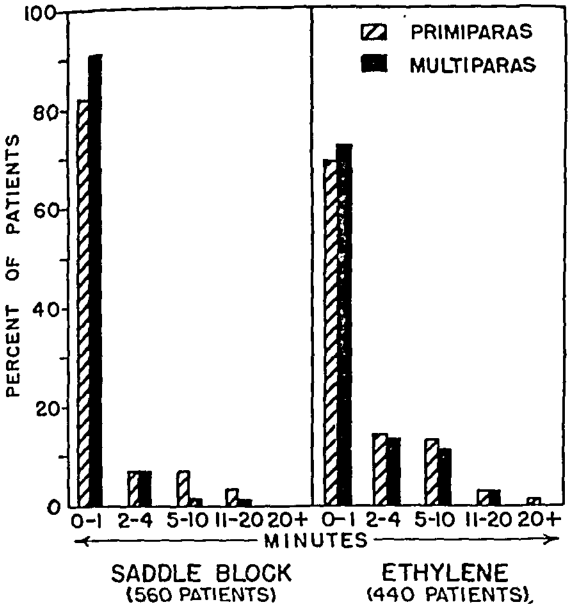

Fig. 7.—Onset of respiration after delivery. Fetal apnea was much more frequent with inhalation anesthesia.

In line with our findings incriminating general anesthesia as a potent factor in the depression of fetal respiration, we reviewed our data to investigate other possible causes of apnea and asphyxia at birth, as well as to evaluate more precisely the relative effect of methadone. To this end we have analyzed the maternal labor and delivery records of 26 infants born under saddle-block anesthesia who failed to breathe spontaneously for four or more minutes. Narcosis from excessive dosage or injudicious timing of depressant agents and trauma to the fetal head during labor or delivery are the major factors contributing to apnea in this group (table 1).

From the standpoint of narcosis, the following facts were noted: (*a*) The mothers of 19 of the 26 babies received 10 mg. of methadone in 90 to 210 minutes before delivery, and seven others were given two 10 mg. doses within five hours of parturition. (*b*) Seventeen infants had superimposed on any methadone effect the pharmacological depression of 200 mg. of amobarbital sodium administered to the mother two to six hours prior to delivery. The inference is obvious: A long-acting barbiturate should be avoided in the actively laboring patient when definitive analgesia with a narcotic drug is contemplated.

The factor of fetal trauma was impressive in 17 of the 26 cases, in the form of prolongation of labor as a whole (seven patients) or of the second stage (two patients), difficult operative delivery (four patients), and delay in delivery with the presenting head pressing against the perineal obstruction for 60 to 180 minutes (14 patients).[16] The latter situation, prolongation of the "perineal" stage of labor, is comparable to "unnatural delay in delivery" found by McKhann [17] to be the second most common etiological factor (next to narcosis) in a group of children manifesting postdelivery brain damage.

Certain babies were affected by such specific complications as intrapartum abruptio placentae, partial placenta previa, and cord entanglement. Eleven infants weighed less than 2,800 gm., and four were between 2,100 and 2,350 gm.

In only one instance (case 1) was methadone the only detectable factor contributing to the asphyxia. This finding fits well with our inability to correlate delay in respiration with the amount of methadone excreted in the fetal urine during the first few days of life in nine babies. It is interesting to note in this regard that maternal urinary excretion of methadone in the immediate puerperium follows the pattern of excretion demonstrated by Scott and Chen [18] in the nonpregnant person (fig. 8). Inspection of the records of 24 babies in our entire series weighing less than 2,600 gm. at birth revealed that 8 (33%) breathed in one minute or less and 13 (54%) in less than three minutes after delivery. Anesthesia for delivery was equally divided between ethylene and spinal.

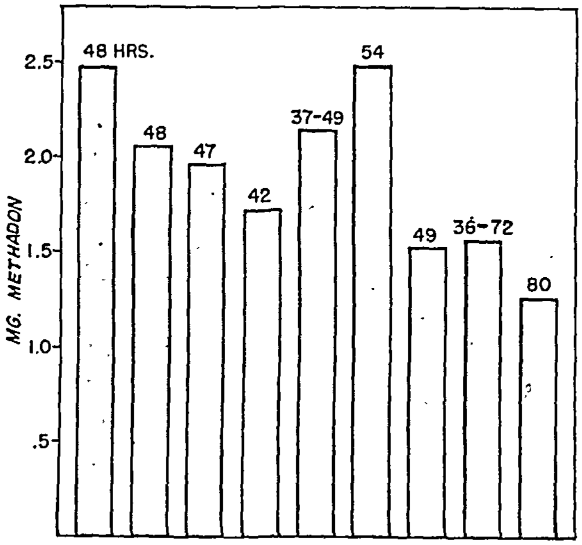

Fig. 8.—Total urinary excretion of methadone in 36 to 80 hours after administration of 10 mg. during labor (nine patients).

Four intrapartum and five postnatal fetal deaths occurred in our series of 1,000 cases. Causes included prolapse of the cord and intrapartum abruptio (in two 2,260 gm. infants), cord entanglement, shoulder dystocia (4,855 gm. infant), breech delivery, erythroblastosis, and major congenital abnormalities. Corrected for the last two conditions, the fetal death rate was 0.5%.

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[16] In five patients more than one type of fetal trauma was present.

[17] McKhann, C. F.; Belnap, W. D., and Beck, C. S.: Late Effects of Cerebral Birth Injury, J. Michigan M. Soc. 50: 149, 1951.

[18] Scott, C. C., and Chen, K. K.: Action of 1,1-Diphenyl-1-(Dimethylaminoisopropyl)-Butanone-2, Potent Analgesic Agent, J. Pharmacol. Exper. Therap. 87: 63, 1946.

## COMMENT

Careful analysis of the complete record of each of the 1,000 patients in this study has served to reaffirm our conviction that pain relief in labor must be individualized. A consideration of the problem should begin as an integral part of prenatal care. The patient's psychological and physical status must be evaluated, her past experiences with labor or other painful episodes considered, and the effects of analgesic drugs assessed. No woman should be promised a completely painless labor nor any particular technique of analgesia. She should be assured, however, that she will be given adequate relief of pain compatible with the safety of her baby and with her own well-being.

When the patient enters the hospital in labor, conditions as they exist at that particular moment must determine the program for analgesia; a preconceived and formalized routine of sedation is to be avoided. The physician must always keep in mind that the numerous factors inherent in parturition, including the delivery itself, can be more important in producing fetal respiratory difficulties than use or avoidance of any particular drug, assuming the agent of choice will be used according to accepted pharmacological principles.

TABLE 1.—*Contributing Factors* in Fetal Asphyxia with Saddle Block Anesthesia*

| | | Case No. | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 10 mg. of methadone 1+-3½ hr. before del..... | 19 | x | x | x | .. | x | x | x† | x | x | x | x | x | x | .. | .. | .. | x | .. | x | .. | .. | x | x | x | x |
| 20 mg. of methadone within 5 hr. of del....... | 7 | .. | .. | .. | x | .. | .. | .. | .. | .. | .. | .. | .. | .. | x | x | x | .. | x | .. | x | x | .. | .. | .. | .. |
| 200 mg. of amobarbital sodium 2-6 hr. before del. .............................. | 17 | .. | x | x | x | x | x | x | .. | .. | x | x | .. | x | .. | x | x | .. | .. | x | .. | .. | x | x | x | x |
| Prolonged labor (50%-300% over mean)........ | 7 | .. | .. | .. | .. | x | x | .. | .. | .. | .. | .. | x | .. | x | .. | x | .. | x | .. | .. | x | .. | .. | .. | .. |
| Prolonged second stage (2½-4 hr.)............. | 2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | x | .. | .. | x | .. | .. | .. | .. | .. | .. | .. |
| Prolonged "perineal" stage (1-3 hr.)........... | 14 | .. | x | x | .. | x | .. | .. | x | x | .. | x | x | .. | .. | .. | x | x | x | x | x | x | .. | .. | x | .. |
| Traumatic delivery ................................ | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | x | x | .. | .. | .. | .. | .. | x | .. | .. | x | .. |
| Small premature infant, 2,100-2,350 gm......... | 4 | .. | .. | x | x | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | x | .. | .. | .. | .. | .. | x | .. | .. |
| Large premature infant, 2,350-2,550 gm......... | 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | x | .. | .. | x | .. | .. | .. | .. | .. | .. | .. | .. | x | .. | x | .. |
| Small term infant, 2,550-2,800 gm............... | 3 | .. | x | .. | .. | .. | .. | x | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | x | .. | .. | .. | .. | .. | .. | .. |

* Other factors probably contributing to asphyxia in specific cases were as follows: partial placenta previa (case 16), intrapartum abruptio placent (case 4), cord entanglement (case 20), severe maternal anemia with 28% hematocrit (case 24), temporary hypotension with spinal anesthesia (case intrapartum sepsis with temperatures of 39.2 C (102.6 F) and 38.5 C (101.3 F) (cases 16 and 17), ethylene analgesia for 45 minutes before spinal anesthes (case 11), and excessively large fetus—4,300 gm. (case 1).

†Methadone, 10 mg., administered 71 minutes before delivery; otherwise, *the minimum in this group was one and a half hours.*

TABLE 2.—*Comparison of Analgesia-Amnesia with Various Methods*

| Medicament | No. of Cases | Satisfactory, % | Excellent, % | Fair, % | Poor, % |
|---|---|---|---|---|---|
| Methadone-scopolamine........ | 1,000 | 82-85 | 63.0 | 22.0 | 15-18 |
| Morphine-scopolamine *........ | 1,827 | 80-85 | .... | .... | .... |
| Meperidine-scopolamine †....... | 969 | 87.4 | 70.5 | 16.9 | 12.6 |
| Meperidine-scopolamine ‡....... | 300 | 86.0 | .... | .... | 14.0 |
| Barbiturates-scopolamine §.... | 14,676 | 85.0 | .... | .... | .... |
| Apomorphine-scopolamine [20]... | 500 | 90.0 | 76.0 | 14.0 | 10.0 |
| Nisentil® (40 mg.) [16]........... | 500 | 90.0 | .... | .... | 3.4 |
| Nisentil® (40 mg.) ‖............ | 125 | 80.0 | .... | .... | .... |

* Krebs, O. S.; Wulff, G. L., Jr., and Wassermann, H. C.: Scopolamine-Morphine Seminarcosis with Modifications, J. A. M. A. **107:** 1104 (Nov. 21) 1936.

† Schumann, W. R.: Demerol (S-140) and Scopolamine in Labor, Am. J. Obst. & Gynec. 47: 93, 1944.

‡ Maximov, A.: Demerol Analgesia in Obstetrics, California Med. 65: 43, 1946.

§ Irving, F. C.: Advantages and Disadvantages of the Barbiturates in Obstetrics, Rhode Island M. J. 28: 493, 1945.

‖ Lund, C. J.: Choices of Analgesics During the First Stage of Labor, J. A. M. A. **145:** 1114 (April 14) 1951.

In reevaluating the patient when she is seen in labor, one must consider such factors as parity, the stage of labor present at the moment—as well as the intensity of uterine activity—the patient's previous labor and delivery history, the maturity and size of the fetus, and any complications of labor present or threatening that in themselves might expose the infant to anoxia. In selecting an agent or agents for analgesia during labor, one must remember that the likelihood for fetal apnea is increased by the use of general anesthesia for delivery.

Our experience with methadone in this respect confirms the observations of Henderson [19] with barbiturates and Hershenson [20] with apomorphine-scopolamine. A premature infant, or a mature fetus exposed to trauma or anoxia in labor, should in particular be spared the additional depressing effect of the combined use of barbiturates, a narcotic, and deep inhalation anesthesia. Th role of methadone in causing fetal asphyxia is no greate than that of any other similar drug.

So far as adequacy of pain relief is concerned, th data in this series substantiate our earlier belief, as we as our continuing experience to a total of over 3,00 cases, that methadone is as potent and (with scopol mine) as useful a drug for obstetric analgesia-amnesia a exists today. Our results for the mother compare favo ably with those reported in large series with other com monly used techniques (table 2). Contrary to earlie and much less extensive reports, methadone provides n unusual hazard to mother or baby.

## CONCLUSIONS

1. Methadone in single 10 mg. doses with scopolamin will produce a high degree of satisfactory analgesi amnesia in the average laboring woman.

2. Progress of labor and uterine motility are not i terfered with.

3. Respiratory depression of the fetus (including premature infants) is no more striking than seen in larg series with other easily managed techniques.

4. As with other narcotics the greatest fetal respiratory effect is noted when methadone is administered 9 or 120 to 210 minutes prior to delivery.

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[19] Henderson, H.; Foster, E. B., and Eno, L. S.: The Relative Effect of Analgesia and Anesthesia in the Production of Asphyxia Neonatorum, Am. J. Obst. & Gynec. **41:** 596, 1941.

[20] Hershenson, B. B., and Brubaker, E. R.: Scopolamine and Apomorphine in Labor, Am. J. Obst. & Gynec. **53:** 980, 1947.

# SEVERE INFECTIONS WITH THE VIRUS OF LYMPHOCYTIC CHORIOMENINGITIS

*John P. Colmore, M.D., New York*

In 1933, during the St. Louis encephalitis epidemic, Armstrong and Lillie [1] isolated a virus which in rhesus monkeys always caused a round cell infiltration of the meninges and choroid plexus and which they therefore named lymphocytic choriomeningitis virus. Since the demonstration of virus neutralizing and complement fixing antibodies in the serums of persons convalescing from infections with the virus of lymphocytic choriomeningitis, it has been estimated that 11% of the general population in urban areas have antibodies against this virus without any history of clinical infection.[2] The syndrome of "benign" lymphocytic choriomeningitis characterized by an initial grippal syndrome of 3 to 10 days' duration, followed in a week to 10 days by symptoms of meningeal irritation, with about a thousand white blood cells in the spinal fluid, of which 90% to 100% are lymphocytes, with negative results of bacteriological studies on the spinal fluid, and with uncomplicated recovery in two to three weeks, is well known and widely recognized.[3] It is not generally recognized that this virus may cause severe encephalitides, myelitides, and even fatalities, although these are mentioned in the newer textbooks and inclusive reviews of the subject.[3]

It is the purpose of this report to draw attention to these severe forms resulting from infections with the virus of lymphocytic choriomeningitis and to report in detail such a case with transverse myelitis, encephalitis, and pneumonia.

## REPORT OF A CASE

E. D., a 24-year-old white married grocery clerk, had a severe headache and "dizzy spells" of two days' duration beginning Feb. 15, 1951. On February 24 he noted the return of the headache, accompanied by backache. Then, gradually, complete paralysis of the lower extremities developed, with an associated loss of sensation. He was admitted to the hospital on February 25, where he had a temperature of 102 F, signs of meningeal irritation, and transverse myelitis with a sensory level just below the umbilicus. Lumbar puncture revealed 980 white blood cells per cubic millimeter, of which 90% were polymorphonuclear neutrophils. Culture of the fluid revealed no growth on the usual mediums. The protein was 125 mg. per 100 cc. The hemogram revealed 4,000,000 red blood cells, 74% hemoglobin, with 4,300 white blood cells, of which 89% were neutrophils (including 9 band forms). Immediate antibiotic therapy consisted of parenterally administered penicillin and orally administered aureomycin. For the next three days the patient was disoriented, occasionally delirious, febrile (up to 103 to 104 F), and incontinent of urine and feces. The sensory level gradually ascended, reaching the clavicles, and it was necessary to administer oxygen. Spinal fluid examination on March 1 revealed a protein determination of 68 mg. per 100 cc. In the following five days his mental condition improved, and there was a gradual drop in the temperature curve to levels of 101 to 102 F, with regression of the sensory level to the umbilicus. Antibiotic therapy was discontinued on March 10, because of an urticarial reaction.

On March 13 the patient was transferred to the Bronx Veterans Administration Hospital, where he was found to have a complete flaccid paraplegia with a sweat and sensory level at the 10th thoracic segment. There were early decubiti over the sacrum and both heels. The temperature on admission was 102 F. Lumbar puncture revealed crystal clear fluid under normal pressure and without evidence of block, protein of 77 mg. per 100 cc., 1 white blood cell per cubic millimeter, normal serology, and a flat colloidal gold curve. Urinalysis revealed a trace of albumin with 15 to 20 white blood cells per high power field. The blood Kahn reaction was negative. Various blood chemical determinations, including liver function studies, were within normal limits. Results of blood heterophil and cold agglutination studies were normal. Serum drawn for virus agglutination studies on admission was subsequently reported to be negative against the viruses of Eastern and Western equine, Japanese B, and St. Louis encephalitides, but results of complement fixation studies against the virus of lymphocytic choriomeningitis were 4+ in 1:16, 3+ in 1:64, 2+ in 1:256, and 1+ in 1:512 dilutions. Cultures of the blood and spinal fluid were negative on the usual mediums.

The patient was treated with general supportive therapy and continued to have a low-grade fever until, on March 19, he was observed to have a shaking chill, after which the temperature rose to 104 F. He then complained of a pleuritic type of right lower anterior chest pain. A hemogram at this time revealed 3,900,000 red blood cells, hemoglobin of 12.6 gm., and 19,900 white blood cells, with 80% polymorphonuclear neutrophils (of which 18 were band forms). A blood culture was sterile, but a urine culture revealed the presence of Aerobacter aerogenes and a gamma Streptococcus. On March 23 he first had clinical and radiological evidence of pneumonia involving the right lower lung field, and a small amount of blood-streaked mucoid sputum was noted. Repeated blood cultures taken during this period were all sterile. The physical signs in the chest suggested consolidation of the right middle lobe with atelectasis of the right lower lobe, which progressed so that on March 29 it was decided to perform a bronchoscopic examination. This revealed narrowing and edema of the orifice of the right middle lobe bronchus, from which a large amount of thick bloody mucoid material was aspirated. Culture of this material revealed no growth. There was almost immediate improvement in the aeration of the right lower lung field. After the bronchoscopic examination the temperature reached a peak of 105 F, and then began a slow but steady drop, so that it was normal by April 5 and has remained so. There was also steady improvement in his general condition. The pneumonia cleared rapidly and completely by roentgenographic examination. Since the middle of April there have been paresthesias in the lower extremities and spontaneous involuntary movements of both feet. Otherwise, neurological examination seven months after the onset shows no change in the complete flaccid paraplegia with sweat and sensory level at the 10th thoracic segment. During the course of the acute febrile period, the sulfonamides, penicillin, streptomycin, aureomycin, terramycin, and chloramphenicol were used singly and in various

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Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the author are the result of his own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

[1] Armstrong, C., and Lillie, R. D.: Experimental Lymphocytic Choriomeningitis of Monkeys and Mice Produced by a Virus Encountered in Studies of the 1933 St. Louis Encephalitis Epidemic, Pub. Health Rep. **49:** 1019 (Aug. 31) 1934.

[2] van Rooyen, C. E., and Rhodes, A. J.: Virus Diseases of Man, New York, Thos. Nelson & Sons, 1948, p. 1051.

[3] (*a*) van Rooyen and Rhodes.[2] (*b*) Cecil, R. L., and Loeb, R. F., editors: Textbook of Medicine, ed. 8, Philadelphia, W. B. Saunders Company, 1951, p. 51. (*c*) Harrison, T. R., and others, editors: Principles of Internal Medicine, Philadelphia, The Blakiston Company, 1950, p. 1059. (*d*) Farmer, T. W., and Janeway, C. A.: Infections with the Virus of Lymphocytic Choriomeningitis, Medicine **21:** 1 (Feb.) 1942.

combinations, without any apparent effect on the pneumonia, the myelitis, or the temperature curve.

Repeat complement fixation studies on the serum have shown a decrease in the titer of antibodies against the virus of lymphocytic choriomeningitis to 4+ in 1:4 dilution and 1+ in 1:32 dilution.

The patient's wife related an illness she had incurred in late December, 1950, characterized by severe headache, stiff neck, and malaise, which confined her to bed for a week. She recovered spontaneously and without sequelae. Complement fixing antibodies against the virus of lymphocytic choriomeningitis were demonstrated in a specimen of her serum drawn on April 3 in the following titers: 4+ in 1:8, 3+ in 1:16, 2+ in 1:32, 1+ in 1:64, and plus-minus in 1:128 dilutions.

Questioning of the patient and his wife revealed that they had known of the presence of mice in their home and in his place of business for some time. However, neither of them had ever actually handled a mouse at any time.

## COMMENT

In this case, although no attempt was made to isolate the virus itself, the results of the serological studies satisfy the criteria for the diagnosis of lymphocytic choriomeningitis.[4] It is generally recognized that the virus is transmitted from its reservoir host, the mouse, to man, probably by inhalation of dried mouse urine, and that usually no physical contact with mice is elicited in the history.[5] In this case, mice had been a problem both in the patient's home and in his place of employment. Furthermore, it is very probable that his wife had the usual type of purely meningeal infection with the virus of lymphocytic choriomeningitis in December, 1950, and that this illness resulted in her positive serological reactions. The high percentage of neutrophils in the initial examination of the spinal fluid has been previously noted.[6]

The initial low leukocyte and normal differential counts, subsequently followed by leukocytosis with both relative and absolute increase of polymorphonuclear forms, mirrors the experience of others.[7]

Cases of lymphocytic choriomeningitis have been reported which were ushered in by a shaking chill or where there were shaking chills during the course of the infection, although this symptom is generally associated witl bacterial dissemination.[8]

The occurrence of the complicating pneumonia in thi case is most interesting, since it was obviously nonbacterial. The virus of lymphocytic choriomeningitis is recognized to cause a pneumonia regularly in experimentally infected animals [9] and has been recovered from pneumonic lesion at necropsy in at least one huma infection.[7b] Several reviews of the virus pneumonias re ognize this virus as one of the rarer etiologic agents.

Armstrong [9c] stated that the virus of lymphocyt choriomeningitis has been recovered from practical every organ, including the lungs of monkeys dying this disease. Findlay and his associates [5b] concluded, the basis of their studies of mice infected with this vir that the central nervous system involvement was o part of a generalized systemic involvement. This co clusion is concurred in by virologists and clinicia studying viral infections that have been recognized involve organ systems other than those for which th had a previously well-known predilection.

The negative bacteriologic studies, the failure to de onstrate the development of cold agglutinins, and t lack of response to antibiotic therapy in this ca strengthen the impression that this represents the fi published instance of clinical recognition of pneumo due to the virus of lymphocytic choriomeningitis. T is felt to be an instance of a primarily neurotropic vir which exhibited pneumotropic properties as well.

There are many reports [11] concerned with the vir pneumonias classified as primary atypical pneumonia unknown etiology in which a variety of central nervo system manifestations, including myelitis, encephalit and meningitis, are described as complicating the p mary pulmonary involvement. In the few instances th include pathologic description, there appears to be not ing to differentiate the lesions from those noted above proved cases of lymphocytic choriomeningitis. Furthe more, the diagnosis of virus pneumonia or prima atypical pneumonia of unknown etiology seems to ha been made in these instances on the basis of "characte istic" x-ray findings, plus a grippe-like syndrome with normal or low white blood cell count. In no instance w the diagnosis documented by cold agglutinin or Strept coccus MG agglutination [11a] studies, nor were attem made to rule out the pneumonias associated with kno nonbacterial agents. One wonders whether these repo were not actually examples of primarily neurotro viruses which incidentally caused pneumonia rather th the converse.

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4. (*a*) van Rooyen and Rhodes.[2] (*b*) Farmer and Janeway.[3d] (*c*) Ayres, J. C., and Feemster, R. F.: Medical Progress: Serologic Tests in the Diagnosis of Infectious Diseases, New England J. Med. **243**: 996 (Dec. 21) and 1034 (Dec. 28) 1950. (*d*) Green, W. R.; Sweet, L. K., and Prichard, R. W.: Acute Lymphocytic Choriomeningitis: A Study of 21 Cases, J. Pediat. **35**: 688 (Dec.) 1949. (*e*) Milzer, A.: Neurotropic Virus Infections in Chicago, 1939-41: Nine Cases of Lymphocytic Choriomeningitis, Proc. Soc. Exper. Biol. & Med. **54**: 279 (Dec.) 1943.

5. (*a*) van Rooyen and Rhodes.[2] Cecil and Loeb.[3b] (*b*) Findlay, G. M.; Alcock, N. S., and Stern, R. O.: The Virus Aetiology of One Form of Lymphocytic Meningitis, Lancet **1**: 650 (March 21) 1936.

6. (*a*) Findlay, Alcock, and Stern.[5b] (*b*) Skogland, J. E., and Baker, A. B.: An Unusual Form of Lymphocytic Choriomeningitis, Arch. Neurol. & Psychiat. **42**: 507 (Sept.) 1939. (*c*) Howard, M. E.: Infection with the Virus of Choriomeningitis in Man, Yale J. Biol. & Med. **13**: 161 (Dec.) 1940.

7. (*a*) van Rooyen and Rhodes.[2] Findlay, Alcock, and Stern.[5b] (*b*) Smadel, J. E.; Green, R. H.; Paltauf, R. M., and Gonzalez, T. A.: Lymphocytic Choriomeningitis: Two Human Fatalities Following an Unusual Febrile Illness, Proc. Soc. Exper. Biol. & Med. **49**: 683 (April) 1942.

8. (*a*) van Rooyen and Rhodes.[2] (*b*) Viets, H. R., and Warren, S.: Acute Lymphocytic Meningitis, J. A. M. A. **108**: 357 (Jan. 30) 1937. (*c*) Machella, T. E.; Weinberger, L. M., and Lippincott, S. W.: Lymphocytic Choriomeningitis; Report of a Fatal Case with Autopsy Findings, Am. J. M. Sc. **197**: 617 (May) 1939.

9. (*a*) Findlay, Alcock, and Stern.[5b] (*b*) Reimann, H. A.: The Viral Pneumonias and Pneumonias of Probable Viral Origin, Medicine **26**: 167 (May) 1947. (*c*) Armstrong, C.: Studies on Choriomeningitis and Poliomyelitis, Harvey Lect., Bull. New York Acad. Med. **17**: 295 (April) 1941.

10. Reimann.[9b] Finland, M., and Dingle, J. H.: Medical Progress: Virus Pneumonias: Pneumonias Associated with Known Non-Bacterial Agents: Influenza, Psittacosis, and Q Fever, New England J. Med. **227**: 342 (Aug. 27) 1942. van Ravenswaay, A., and others: Clinical Aspects of Primary Atypical Pneumonia: A Study Based on 1,862 Cases Seen at Station Hospital, Jefferson Barracks, Missouri, from June 1, 1942 to Aug. 10, 1943, J. A. M. A. **124**: 1 (Jan. 1) 1944.

11. Reimann.[9b] Sheppe, W. M.; Osterman, A. L.; Ahroon, C. R., and Zuflacht, J. J.: Meningomyelitis: A Complication of Primary Atypical Pneumonia, J. A. M. A. **122**: 1245 (Aug. 28) 1943. Turner, R. W. D.: Atypical Pneumonia, Lancet **1**: 493 (April 21) 1945. Gundersen, S.: Primary Atypical Pneumonia of Unknown Etiology, New England J. Med. **231**: 697 (Nov. 23) 1944. Holmes, J. M.: Neurological Complications in Atypical Pneumonia, Brit. M. J. **1**: 218 (Feb. 8) 1947. Cattaneo, A.: Le complicazione neurologiche nella polmonite atipica primaria o polmonite da virus, Gazz. osp. **40**: 278, 1949.

11a. This non-hemolytic streptococcus is referred to as streptococcus MG by Mirick and associates (J. Exper. Med. **80**: 391 [Nov.] 1944).

As previously mentioned, since the report of Findlay, Alcock, and Stern[5b] in 1936, it has been increasingly apparent that the heretofore widely used appellation of "benign" lymphocytic choriomeningitis was a misnomer, since both severe encephalitides and fatalities were seen following infections with this virus. The accompanying table includes all those cases found in an exhaustive review of the literature which showed severe forms of the disease. An attempt has been made to subdivide these cases into those which are well documented in regard to their etiology, the criteria for selection being either recovery of the virus, or the development of a significant titer of complement fixing or of virus neutralizing antibodies, or of both. Those cases that were rejected were those in which the diagnosis was made on clinical grounds solely, and, although they may well represent accurate diagnoses, laboratory corroboration is lacking.

*Reported Cases of Lymphocytic Choriomeningitis with Encephalitis or Encephalomyelitis, Including Fatalities*

| | | Encephalitis or Encephalomyelitis | | Fatalities | |
|---|---|---|---|---|---|
| Author | Year | Total | Documented* | Total | Documented* |
| Findlay, Alcock, and Stern[5b] | 1936 | 2 | 2 | 0 | 0 |
| Viets and Warren[8b].......... | 1937 | 2 | 1 | 1 | 0 |
| Barker and Ford[13b]......... | 1937 | 1 | 1 | 0 | 0 |
| Machella, Weinberger, and Lippincott[8c] ............... | 1939 | 1 | 0 | 1 | 0 |
| MacCallum and Findlay[13c].. | 1939 | 1 | 1 | 0 | 0 |
| Silcott and Neubuerger (Am. J. M. Sc. 200: 253, 1940)..... | 1940 | 3 | 0 | 3 | 0 |
| Howard[6c] .................. | 1940 | 6 | 6 | 3 | 3 |
| Smadel and others[7b]......... | 1942 | 2 | 2 | 2 | 2 |
| Milzer[4e] ...................... | 1943 | 3 | 3 | 0 | 0 |
| Baker[6b, 12b] .................. | 1947 | 1 | 1 | 1 | 1 |
| Vedder (Nederl. tijdschr. geneesk. 92: 3532 [Oct. 30] 1948) | 1948 | 1 | 0 | 1 | 0 |
| Present report................ | 1951 | 1 | 1 | 0 | 0 |
| Totals .................. | .... | 24 | 18 | 12 | 6 |

* Cases proved by virus recovery and/or by serologic studies.

It can readily be seen that there are (exclusive of the present report) 17 well-documented cases of encephalitis or encephalomyelitis and that of these there were six fatalities. The pathologic changes noted in the central nervous system in these cases include meningeal infiltration with lymphocytes, red cells, and macrophages; inflammation of the choroid plexus and often of the ventricular ependyma; and perivascular cuffing with lymphocytes, mononuclear cells, and red cells. Gliosis, demyelination, petechial and occasionally massive hemorrhages and necrosis in both gray and white matter were seen. Arachnoiditis occasionally occurred.[12] As has been noted, there is no distinctive feature either clinically or pathologically in these cases which would aid in differentiating the central nervous system involvement by this virus from any other virus; hence the importance of the serological and virological studies.

In contrast to the usual benign and brief form of purely meningeal involvement with the virus of lymphocytic choriomeningitis, patients with severe nonfatal central nervous system infection frequently had a protracted course, with several instances of permanent disability.[13]

It is felt that penicillin, the sulfonamides, aureomycin, terramycin, chloramphenicol, and streptomycin, both singly and in combination, had no effect on the course of the encephalitis, myelitis, or the pneumonia in this case. This is at variance with the report of Grater and Rider.[14]

## SUMMARY AND CONCLUSIONS

1. A case of severe infection with the virus of lymphocytic choriomeningitis, proved by serological studies, is reported, manifesting itself by a transverse myelitis with a sensory level at the 10th thoracic segment, transient encephalitis, and a virus pneumonia.

2. Seventeen documented cases of severe involvement of the central nervous system with this virus, including six fatal infections, have been collected from a review of the literature.

3. Evidence is presented to support the thesis that lymphocytic choriomeningitis is a generalized systemic infection with a primarily meningotropic virus which not infrequently becomes pneumotropic and neurotropic.

4. It is suggested that serological studies for specific viruses, including the virus of lymphocytic choriomeningitis, be performed in cases of virus pneumonia in which there do not develop positive cold or Streptococcus MG agglutinins, particularly in those cases in which signs of meningeal or of central nervous system irritation are exhibited.

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[12] (*a*) van Rooyen and Rhodes.[2] Farmer and Janeway.[3d] Howard.[6c] Smadel and others.[7b] (*b*) Baker, A. B.: Chronic Lymphocytic Choriomeningitis, J. Neuropath. & Exper. Neurol. **6**: 253 (July) 1947.

[13] (*a*) Findlay, Alcock, and Stern.[5b] Howard.[6c] Viets and Warren.[8b] (*b*) Barker, L. F., and Ford, F. R.: Chronic Arachnoiditis Obliterating the Spinal Subarachnoid Space, J. A. M. A. **109**: 785 (Sept. 4) 1937. (*c*) MacCallum, F. O., and Findlay, G. M.: Lymphocytic Choriomeningitis; Isolation of the Virus from the Nasopharynx, Lancet **1**: 1370 (June 17) 1939.

[14] Grater, W. C., and Rider, J. A.: Lymphocytic Choriomeningitis; Treatment of Two Cases with Aureomycin, Texas State J. Med. **45**: 568 (Aug.) 1949.

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**Pentothal® Anesthesia.**—Anyone employing thiopental (pentothal®) sodium should, for safety, be aware that among other effects the drug (as do all barbiturates) impairs the sensitivity of the respiratory center to its normal chief stimulus, carbon dioxide. Under full thiopental anesthesia the body has to make use of a supplementary mechanism in order to keep respiration going. To maintain respiration a shift is made from the normal driving action of carbon dioxide on the respiratory center to the action of anoxia on the carotid mechanisms in the neck. Anoxia will stimulate respiration just as powerfully in the patient under deep thiopental anesthesia as under light anesthesia. Thus the uninformed anesthetist may believe that respiratory stimulation means that the patient under thiopental anesthesia is awakening, whereas it may mean simply that the patient is not getting enough oxygen. A wrong interpretation here, leading to the further administration of thiopental sodium, has caused deaths. In other words, the true depth of thiopental anesthesia may be impossible to determine when there is a low oxygen content of the blood. For safety, certainly always in long operations, oxygen is administered with thiopental. As explained above, the respiratory center of the patient under full thiopental anesthesia loses its sensitivity to carbon dioxide. In fact, carbon dioxide becomes a depressant to respiration under this agent, and use of carbon dioxide as a respiratory "stimulant" is contraindicated during treatment of respiratory depression caused by thiopental or any other barbiturate. Acceptable practice with thiopental sodium involves the use of a 2.5 per cent solution, routine administration of oxygen to the patient in all except short (half-hour) operations, and frequent observation of pulse and blood pressure during anesthesia.—Henry K. Beecher, M.D., Early Care of the Seriously Wounded Man, Springfield, Charles C Thomas, Publisher, 1952.

# SPONTANEOUS VENOUS THROMBOSIS IN THE LEGS OF TALL MEN

*Meyer Naide, M.D., Philadelphia*

A dangerous type of spontaneous venous thrombosis in the legs was seen in six men, during a two-year period. All of these men were over 6 ft. (182.88 cm.) tall, and four of them were 6 ft. 2 in. (187.96 cm.) or more. In none of these patients did the venous thromboses follow surgical operations, but in each case they appeared after severe physical strain or for no apparent reason. In all of the many other patients seen with thrombophlebitis over the same two-year period, the thromboses occurred either postoperatively or post-partum, or as a result of malignancy, prolonged illness, or involved superficial varicose veins.

In three of the tall patients pulmonary infarction was the first symptom, and five required either iliac or femoral vein ligation. All six of these patients had, initially or eventually, bilateral involvement. Two of the patients had pulmonary emboli while receiving anticoagulants, and a third had embolism after anticoagulant treatment was stopped.

## REPORT OF CASES

CASE 1.—A 38-year-old man was seen July 13, 1948. He had had superficial thromboplebitis in the right leg in 1945 and 1947. Early in July, 1948, after helping move furniture, he had four syncopal attacks, lasting one minute each, over a period of 10 days. On July 11 pain developed in the right calf and ascended to the groin along the inner thigh. Physical examination revealed a robust white man, weighing 206 lb. (93 kg.), 6 ft. 3 in. (191 cm.) in height, temperature 99 F, pulse rate 76, and blood pressure 116/74 mm. Hg. There was an indurated tender superficial vein in the right leg, going up to the midthigh along the inner aspect. The right calf was 2 cm. greater in circumference than the left. All pulses were palpable. Acute thromboplebitis of the right long saphenous vein with deep vein thrombosis and small pulmonary infarcts was considered the probable explanation for the syncopal attacks. He was hospitalized, and heparin and bishydroxycoumarin (dicumarol®) were given, along with blocking of the sympathetic ganglions with tetraethylammonium chloride, elevation of the leg, and elastic bandages. He was kept at complete bed rest, except when a chest x-ray was made two days after admission. The x-ray was reported as showing small adhesions between the pleura and diaphragm on each side and one between the pericardium and the pleura on the left side. That day, at 3 p. m., the patient felt an "itching sensation, like a bug crawling" in the region of the right knee. He reached down to scratch it, and the sensation moved up into the thigh and suddenly disappeared, to be followed immediately by pain sharply localized in the left precordial area. The pain was a sensation of pressure and gradually subsided within several minutes. The chest was normal on auscultation. A diagnosis of pulmonary embolism was made, and that afternoon the right common iliac vein was ligated above an old thrombus which was found at operation, within an inch of the vena cava. The patient did well after this and was discharged on July 29, 1948, with no further symptoms. His subsequent course was relatively uneventful until Jan. 9, 1949, when a tender cord developed which could be felt in the left inner thigh. He seemed to improve with conservative treatment until January 23, when swelling of the left calf appeared with deep tenderness. He was again hospitalized, and, because of his previous experience with the right leg, the left external iliac vein was ligated. No clots were found in this vein. He had no further symptoms until June 1, when he was seen again because he complained of a cramp in the right calf. There was some soreness of the right inner calf, but no thrombosed vein was palpable. There was only slight edema of both legs. This symptom subsided spontaneously. He has been well since then.

CASE 2.—A 38-year-old white man, height 6 ft. 2 in. (18 cm.) and weight 208 lb. (94 kg.), was first seen on June 27, 1946 He gave a history of having had what was diagnosed as pneumonia in June, 1945. At that time he had phlebitis of the lef leg. Several similar pulmonary episodes occurred until December, 1945, when he was hospitalized; a diagnosis of pulmonar embolism was made, and the left common iliac vein was ligate Large thrombi were present in the iliac vein. The left leg continued to be swollen, but he had no acute symptoms until June 1946, when pain developed in the righ calf. This pain persiste and on admission there was tenderness and induration in a vei along the right inner aspect of the calf. Anticoagulant therap was instituted. All symptoms subsided. However, in Novembe 1946, he had another episode of thrombophlebitis with pulmonary embolism, at which time he was very ill. The right ili vein was ligated. In February, 1947, he had an episode of supe ficial thrombophlebitis in the right foot, ankle, and leg, f which tetraethylammonium chloride and bishydroxycoumar were used, with subsidence of the symptoms. No further sym toms have been present.

CASE 3.—A 49-year-old white man, height 6 ft. 1 in. (1 cm.) and weight 205 lb. (93 kg.), was seen on Oct. 16, 1947. Th history was that of chest pain and bloody sputum in Januar 1947, following an automobile drive of 3,000 miles (4,828 km A diagnosis of pulmonary infarction was made. At that tin there was no sign of phlebitis, but he was given bishydrox coumarin. Pain developed in the right leg four days later, an the right common femoral vein was ligated. In February, 194 thrombophlebitis of the left leg developed and the left comm femoral vein was ligated. In July, he had another attack thrombophlebitis after working in a squatting position. In th early part of October, discomfort appeared in the left leg, and October 10 a cough, bloody sputum, and chest pain develope There were rales at the right base. He was given heparin an bishydroxycoumarin. The following morning he had anoth severe attack of chest pain and bloody sputum. The left leg an thigh were greater in circumference than the right. A tend thrombosed vein was present on the left leg and inner aspect the thigh. Bilateral common iliac ligation was recommende The patient, however, decided to leave the hospital and was give bishydroxycoumarin therapy on an ambulatory basis in anoth institution.

## COMMENT

Present day therapy of thrombophlebitis requires th use of anticoagulants. Failure of such treatment in thi type of patient is indicated by development of pulmonar emboli. The fact that pulmonary emboli developed i five of our six patients suggests that in tall persons spontaneous venous thrombosis is a dangerous conditio Early treatment by ligation is desirable in such patients since they do not respond well to anticoagulants.

The cause of spontaneous venous thrombosis followed by pulmonary emboli in tall persons is not clear In four of our six patients physical strain involving th legs appeared to be the precipitating factor. Strain o effort has been recognized as a cause of thrombosis o the axillary or subclavian vein. Effort has not been similarly stressed as a possible cause for venous thrombosis in the legs. In addition, the greater vein length in tall persons may increase the difficulty of venous return to the vena cava, thus predisposing to stasis. The cramped

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From the Peripheral Vascular Section of the Edward B. Robinette Foundation, Medical Clinic, Hospital of the University of Pennsylvania.

positions that tall persons are frequently forced to assume for considerable periods of time, especially when sitting, may be a contributing factor. If thrombi form in the veins, strain resulting from severe exertion or from unnatural leg position could produce a separation of the clot from the vein wall and pulmonary embolism, so well described by Chapman and Linton.[1] Physical strain of any sort may also result in damage or tear in a vein wall; this, in turn, may lead to clot formation at the site of injury.

Riggs,[2] in discussing the problems of tall men, does not mention any disease to which such persons are particularly subject but mentions in detail their numerous physical discomforts. Neuhof [3] discusses many case histories of venous thrombosis. He refers to obesity as playing a part in the etiology but does not mention the height of any of his patients.

*Summary of Data on Six Tall Men with Venous Thrombosis in the Legs*

| Case No. | Age | Height | Weight, Lb. | Occupation | Tobacco Smoking Habits | History | Strain or Trauma | Treatment | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 38 | 6′ 3″ | 206 | Draftsman | Pipe | Thrombophlebitis 1945 and 1947; in 1948 superficial and deep thrombophlebitis rt. leg and pulm. embolism; thrombophlebitis lt. leg 1949 | Strain before each episode; carried heavy box; swimming; moved furniture | Anticoagulants; rt. common iliac and lt. ext. iliac vein ligations | Anticoagulants inadequate; pulm. embolism |
| 2 | 38 | 6′ 2″ | 208 | Merchant | 20 cigarets daily | Left leg thrombophlebitis and pulm. embolism in 1945; rt. leg thrombophlebitis and pulm. embolism 1946 | None known | Rt. common iliac vein ligation; anticoagulants for rt. phlebitis. Pulm. embolism; lt. iliac vein ligation | Anticoagulants inadequate; pulm. embolism |
| 3 | 49 | 6′ 1″ | 205 | Merchant | 20 cigarets daily | Phlebitis rt. leg, pulm. embolism in 1947; phlebitis lt. leg a month later | Drove 3,000 mi. before first venous thrombosis | Bilateral common femoral vein ligation; anticoagulants | Pulm. embolism |
| 4 | 46 | 6′ 2″ | 218 | Furniture salesman | No tobacco | Bilateral thrombophlebitis and pulm. embolism Sept., 1947 | None known | Bilateral superficial femoral vein ligation, bishydroxycoumarin and tetraethylammonium chloride | Pulm. embolism |
| 5 | 47 | 6′ ½″ | 245 | Salesman | 20 cigarets daily | Fell on back Oct., 1948; rt. thrombophlebitis Jan., 1949; pulm. embolism | Fall on back 3 mo. prior to vein thrombosis | Anticoagulants; rt. common iliac vein ligation | Anticoagulants inadequate; pulm. embolism |
| 6 | 41 | 6′ 2½″ | 195 | Lawyer | Occasional cigaret | Bilateral thrombophlebitis 1925, after fall; leg ulcers until 1947; phlebitis rt. leg 1949; absent left dorsalis pedis pulse | Tennis and horseback riding | Anticoagulants | ............. |

In one of my patients a diagnosis of thromboangiitis obliterans was considered but was thought to be unlikely (case 6 in table). This differential diagnosis must be considered when arterial occlusion is present along with venous thrombosis in a male patient. Pulmonary embolism, although extremely rare, has been reported in thromboangiitis obliterans when deep vein thrombosis has occurred (Kahn [4]). It may therefore be important that such patients stop smoking. One of the six patients in this series of six cases seems unlikely, in view of the frequently. The diagnosis of thromboangiitis obliterans in this series of six cases seems unlikely, in view of the fact that in most of them the disease consisted almost entirely of vein thrombosis with repeated loose clots. It would appear more likely that vein clots developed in these patients because of their unusual height and because of some strain imposed on their venous system, and perhaps, also, because of some factor tending toward increased coagulability of the blood.

I have seen hundreds of patients with all types of venous thromboses, but the first patient to describe the creeping of the thrombus up the leg and thigh with disappearance and immediate onset of chest pain was the patient described in case 1. This sensation may conceivably be ascribed to the movement of a large clot distending a vein. The blocking of the common iliac vein by the adherence of the old thrombus to the wall, thereby preventing the passage of subsequent large clots, may have prevented fatal pulmonary embolism in this case.

## SUMMARY

Six tall patients with a particularly dangerous type of venous thrombosis are reported; pulmonary embolism occurred in five of them. These patients were all between 6 ft. (183 cm.) and 6 ft. 3 in. (191 cm.) in height. The venous thrombosis occurred spontaneously in four of them after strain of one type or another. This may be a form of "effort" thrombosis in the legs.

It appears that venous thrombosis may develop in the legs of tall persons as a result of factors that are not present in persons of lesser height. Venous thrombosis in tall persons is more likely to result in pulmonary emboli. In three of the patients pulmonary infarction was the first symptom. In three, heparin and bishydroxycoumarin (dicumarol®) alone were *not* effective in preventing embolism. Iliac or femoral vein ligation appears to be the desired treatment in these patients.

2034 Spruce St. (3).

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1. Chapman, E. M., and Linton, R. R.: Mode of Production of Pulmonary Emboli, J. A. M. A. **129**: 196-197 (Sept. 14) 1945.
2. Riggs, F. B.: Tall Men Have Their Problems Too, 23 Coolidge Hill Road, Cambridge 38, Mass., F. B. Riggs, 1943.
3. Neuhof, H.: Venous Thrombosis and Pulmonary Embolism, Mount Sinai Hospital Monograph No. 2, New York, Grune & Stratton, 1948, p. 159.
4. Kahn, J. W.: Thrombophlebitis of Deep Veins in Thromboangiitis Obliterans, Surg., Gynec. & Obst. **83**: 449-452 (Oct) 1946.

# WESTERN REGIONAL COOPERATION IN HIGHER EDUCATION

*Ward Darley, M.D., Denver*

The application of the idea of regional cooperation in higher education to the western part of this country was first suggested at the 1947 meeting of the western division of the American Public Health Association by Dr. Florence Sabin. A resolution supporting the principle of such cooperation was passed at this meeting. In December, 1948, the governors of Utah, New Mexico, Wyoming, and Colorado sponsored an informal discussion of the matter in Denver. One year later, the idea was officially taken up by the Western Governors' Conference,[1] with the result that the following statement was adopted:

"It is the consensus of the Western Governors' Conference:

"1. That the future of the country and of the western states is dependent upon the quality of the education of its youth;

"2. That all of the states individually and alone do not have sufficient numbers of potential students to warrant the establishment and maintenance of adequate facilities in all of the essential fields of technical, professional, and graduate training; nor do all of the states have the financial ability to furnish within their borders institutions capable of providing acceptable standards of training in all of the fields mentioned above; and

"3. That the western states, or groups of such states within the region, cooperatively can provide acceptable and efficient educational facilities to meet the needs of the region and of the students thereof.

"The Western Governors' Conference believes that a cooperative plan among the western states is necessary and desirable and should be developed to provide more extensive facilities and training for the students of this region.

"To this end, the Chairman of the Western Governors' Conference is directed to appoint a committee to develop such a plan and to submit it to the next meeting of the Western Governors' Conference for its consideration and for such action as it deems wise."

In keeping with the last paragraph of this statement, Gov. Earl Warren of California, chairman of the conference, appointed Governors Lee Knous of Colorado, A. G. Crane of Wyoming, Thomas Mabry of New Mexico, C. A. Robins of Idaho, and Arthur B. Langlee of Washington as the special committee to work out the assignment. Two technical committees were established. The first was to study and report on the area's needs for professional and technical personnel and on the educational opportunities available for the satisfaction of these needs. In addition, it was to develop a plan that would permit coordination of the area's educational resources in the most economical and effective manner possible to the end that the needs for both personnel and educational opportunities might be more adequately met. It was decided that initial consideration was to be limited to the fields of dentistry, medicine, public health administration, and veterinary medicine. Subcommittees were assigned the task of gathering and organizing data that were pertinent to each of these areas.

The second technical committee, made up of the stat and territorial attorneys general, was to prepare a lega instrument compatible with the provisions of the pla and also with the several state and territorial constitu tions. The reports and documents worked out by th Southern Governors' Conference were invaluable to th work of these two technical committees.

After many meetings of small working groups as we as of the two principal technical committees, the speci committee of governors was given a detailed report and carefully considered plan that was presented to and a cepted by the Western Governors' Conference at its 19 meeting. The staff of the Council of State Governmen prepared an excellent synopsis of the report and propos plan that the governors could present for the conside ation of their respective legislatures, all of which m during the winter of 1951. The plan provided that wh the proposed compact had been accepted by five sta it would become operative, and, during the legislati sessions of 1951, five states, Colorado, Montana, N Mexico, Utah, and Oregon, took the necessary acti and the way was cleared to activate the plan. In t meantime, a resolution[2] approving the compact has be introduced into the United States Senate. This has n yet been acted on.

The detailed studies of personnel and education needs, although of extreme interest and importance the states and territories concerned, are not necessary this review. It is sufficient to say that they strongly jus fied the institution of a plan for regional cooperatio The plan, as reflected in the compact, is similar to the o worked out by the Southern Governors' Conference. T compact established a western interstate commission higher education made up of three commissioners a pointed by the governor of each compacting state a territory. The commission elects its own chairman a vice-chairman from among its members and has bro powers to set up committees, employ a secretariat, a select its base of operations. At the commission's fi meeting, Dean O. Meredith Wilson of the University Utah was selected as chairman and president, a Thomas L. Popejoy of the University of New Mexi was selected as vice-chairman. Relying on its bro powers, the commission established an executive com mittee consisting of one representative from ea compacting state, with the chairman and vice-chairma representing their respective two states. As yet, the com mission is without funds for the financing of its ope ations. As a consequence, the Council of State Gover ments, through its San Francisco office, is current serving as the secretariat. In the meantime, the secretari and special subcommittees are gathering addition

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From the University of Colorado Medical Center.

Read before the Forty-Eighth Annual Congress on Medical Education and Licensure, Chicago, Feb. 11, 1952.

[1] Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming, and the territories of Alaska and Hawaii were represented.

[2] S. J. Resolution 99, Aug. 31, 1951, 82nd Congress, first session.

needed data and are working out the details of bylaws and other necessary procedural machinery.

The work of the commission is to be financed by two types of legislative appropriations: the first type, a basic appropriation equal in amount for each state, is to finance the routine executive activities of the commission; the second type is an appropriation that will vary in amount, depending on the quantity of educational service each compacting state or territory wishes to purchase. Two of the compacting states have appropriated their share of the administrative cost. It is anticipated that the others will make their contributions within the next year and that the commission will be in full operation by the fall of 1953.

The functions of the commission are implied in the 1949 resolution of the Western Governors' Conference and are spelled out in the compact that is being adopted by the interested states and territories. The compact provides as follows:

"... the Commission may enter into contractual agreements

"(*a*) with the governing authority of any educational institution in the Region, or with any compacting state or territory, to provide such graduate or professional educational services upon terms and conditions to be agreed upon between contracting parties, and

"(*b*) with the governing authority of any educational institution in the Region or with any compacting state or territory to assist in the placement of graduate or professional students in educational institutions in the Region providing the desired services and facilities, upon such terms and conditions as the Commission may prescribe."

The compact further provides: "It shall be the duty of the Commission to undertake studies of needs for professional and graduate educational facilities in the Region, the resources for meeting such needs, and the long-range effects of the compact on higher education; and from time to time to prepare comprehensive reports on such research for presentation to the Western Governors' Conference and to the legislatures of the compacting states and territories."

I have simply outlined the main points in the development, organization, and program of the Western Regional Commission for Higher Education. More details can be gleaned from a brochure published by the Council of State Governments [3] and from a recent article in the December, 1951, issue of *State Government,*[4] by Mary M. Condon, superintendent of public instruction for the state of Montana.

In closing, it should be emphasized that the interstate compact described in this paper is entirely independent of the arrangements in the interests of undergraduate medical education that are currently in operation between the Universities of Colorado, Wyoming, and New Mexico. These agreements will probably continue until they can be displaced by the activities of the Western Interstate Commission for Higher Education.

4200 East 9th Ave.

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[3] Western Regional Cooperation in Higher Education, January 1951, Council of State Governments, Chicago.

[4] Published monthly by the Council of State Governments.

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# USE OF N-ALLYLNORMORPHINE IN TREATMENT OF METHADONE POISONING IN MAN

## REPORT OF TWO CASES

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*and*
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The treatment of acute narcotic poisoning (from morphine and related compounds and meperidine and methadone) has heretofore been largely symptomatic and supportive, since the analeptic drugs available were not specific antidotes for morphine. In 1943, Unna [1] reported that N-allylnormorphine, a morphine derivative in which the methyl group had been replaced by an allyl group, antagonized most of the actions of morphine in experimental animals. Unna's results were confirmed by Hart and McCawley.[2] Later, Huggins, Glass, and Bryan,[3] and Smith, Lehman, and Gilfillan [4] observed that N-allylnormorphine protected dogs against the respiratory depression induced by methadone, a synthetic analgesic with morphine-like action that does not resemble morphine in chemical structure.

Since there has been only one report [4a] of the use of this specific antidote in the treatment of narcotic poisoning in man, it was thought desirable to record two cases of acute methadone poisoning in which N-allylnormorphine apparently induced spectacular and, possibly, life-saving effects.

CASE 1.—A 33-year-old healthy Negro weighed 183 lb. (83 kg.). He had been addicted to heroin but had been abstinent from all opiates for 38 days. In the course of experiments for which he had volunteered, he received an intravenous injection of 20 mg. of methadone hydrochloride at 8:30 a. m. and another at 1:30 p. m. The latter injection induced nausea and weakness, followed by sedation, which progressed to deep sleep at 4:30 p. m. At 6 p. m. the patient was comatose and could not be aroused by vigorous manual stimulation. The respiratory rate

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N-Allylnormorphine Hydrochloride was supplied by Merck & Company, Inc., Rahway, N. J.

From the Addiction Research Center, National Institute of Mental Health, Public Health Service Hospital.

[1] Unna, K.: Antagonistic Effect of *N*-Allyl-Normorphine upon Morphine, J. Pharmacol. & Exper. Therap. **79**: 27-31 (Sept.) 1943.

[2] Hart, E. R., and McCawley, E. L.: The Pharmacology of N-Allylnormorphine as Compared with Morphine, J. Pharmacol. & Exper. Therap. **82**: 339-348 (Dec.) 1944.

was 3 per minute, and the patient was cyanotic. Artificial respiration was carried out manually, but each time it was discontinued the patient's respiratory rate dropped to 2 or 3 per minute. At 6:40 p. m. the patient was given 375 mg. of nikethamide intramuscularly, and an airway was inserted. There was no improvement following administration of the nikethamide. At 7 p. m. the patient was still comatose. The deep tendon, gag, and corneal reflexes could not be elicited; the pupils were slightly dilated; and the respiratory rate was 2 per minute. Rectal temperature was 35.8 C (96.44 F). The pulse was of good quality, and the rate was 75 beats per minute.

The patient was then given 40 mg. of N-allylnormorphine hydrochloride intravenously.[1] Four minutes later the respiratory rate rose to 10 per minute, and 23 minutes after injection it was 24 per minute. At this time the pulse rate was 100, and the pupils became very constricted. Seventy minutes after administration of N-allylnormorphine, the patient was very drowsy but could be aroused by vigorous stimulation. Shortly afterward, he walked with assistance. Subsequently, he complained of impaired hearing, but his recovery was progressive and uneventful.

The eosinophil count at 7:35 p. m. was 12 cells per cubic millimeter, and at 10:45 p. m. there were no cells. The eosinophil count remained at zero for 20 additional hours and gradually returned to a normal count of 269 eosinophils 60 hours after administration of N-allylnormorphine The electroencephalogram, 24 hours after the first dose of methadone, showed continuous nonrhythmic low-to-moderate voltage slow dysrhythmia (4 to 6 cps) interspersed with short alpha rhythms. A subsequent electroencephalogram 40 days later showed a similar record, except that the alpha frequency was 10 to 12 cps, whereas in the original electroencephalogram it was 8.5 to 10 cps.

Concurrently, another healthy Negro received 20 mg. of methadone intravenously from the same bottle, first at 8:30 a. m. and again at 1:30 p. m. He showed no unusual response. The contents of this bottle were analyzed for chloride, and the amount was found to check with the concentration of methadone described on the label.

CASE 2.—A 30-year-old healthy Negro weighed 156 lb. (70.76 kg.). He had been addicted to heroin but had been abstinent for 150 days. In the course of experiments, in which he was participating voluntarily, he received an intravenous injection of 20 mg. of methadone hydrochloride at 5:25 p. m., with no unusual reaction. At 8:10 a. m. the next morning, although he was showing some signs of methadone effects, he was given 30 mg. of methadone intravenously. The patient showed heavy sedation during the following hour. At 9:45 a. m. he became unconscious and could not be aroused. At 10:10 a. m. he was comatose and did not respond to vigorous manual stimulation. The deep tendon, ag, and corneal reflexes could not be elicited, and respiration vas shallow and extremely irregular, at a rate of 12 per minute. he patient was cyanotic; the heart rate was 110 per minute; and the pulse was strong. The rectal temperature was 36.1 C (96.98 F), and the pupils appeared to be normal in size.

At 10:12 a. m. he was given 25 mg. of N-allylnormorphine intravenously. Three minutes later, respiration became regular and increased in depth, although the rate was not greatly altered. Without other stimulation the patient raised up on his elbows and grunted. Five minutes after receiving N-allylnormorphine, all reflexes had returned, the patient was completely conscious, able to answer questions intelligently, and was no longer cyanosed. He was frightened and did not want the attendant to leave him. He shivered for about one hour. Respiratory rate and depth were well maintained thereafter, and there was no significant change in pupillary size.

By 2 p. m. it was difficult to keep patient aroused, so he was given an additional 10 mg. of N-allylnormorphine subcutaneously. This dose was repeated at 3:10 p. m. Recovery thereafter was progressive. The eosinophil count was 19 at 12 o'clock, 0 at 5 and 9 p. m., and 163 at 8 a. m. the following morning. The pattern of the electroencephalogram at 2 p. m. was that usually associated with deep sleep, and it was not until after the last 10 mg. dose of N-allylnormorphine was administered that the electroencephalographic pattern changed spontaneously to that characteristic of the waking state.

Another Negro received 30 mg. of methadone hydrochloride intravenously from the same bottle at 2 p. m. and 30 mg. at 8 a. m. the next morning. He showed no unusual reaction. The contents of this bottle were analyzed for nitrogen, and the amount was found to check with the concentration of methadone described on the label.

COMMENT

The doses of methadone hydrochloride administered to these patients were, admittedly, large and, of course, far greater than those used in ordinary clinical practice; however, in the course of various experiments, equally large doses have been administered to more than 10 white males, and to 10 Negro males not mentione above. All had been addicted to opiates but were ab stinent and not tolerant to opiates at the time the meth adone was administered. No coma or serious respirator depression appeared in any instance.

In the two cases reported, the differences in the effec on the different persons probably cannot be ascribed t the erroneous administration of larger doses of meth adone than those ordered. A careful audit of the recor showed that the amounts of solution given were correc and a chemical analysis of both bottles revealed that th concentrations of the methadone solutions were tho specified on the labels. It is noteworthy that both cas of poisoning occurred after the administration of tw doses of methadone hydrochloride. In case 1, 5 hou had elapsed between the doses, and in case 2, almost hours had elapsed. It is of interest that signs of persiste methadone effect were observed in case 2 before the se ond dose was administered. Both cases illustrate the lo period of action of methadone in man, an action *th* leads to cumulative effects when more than one dose administered in 24 hours.[5]

There is no question but that N-allylnormorphine pr duced a spectacular reversal of the methadone-induc depression in both these cases. The response was ve nearly analagous to that observed in experimental a mals.[6] Both patients were comatose and could not aroused, and both were completely without reflex Respiratory depression was severe, and cyanosis was e dent in both. The pupils were not constricted in eith patient, as would have been expected in mild methado poisoning. The dilatation of the pupils in case 1, as w as the normal size of the pupils in case 2, was proba due to anoxia. The total clinical picture was that ass ciated with serious poisoning, especially since the corn and gag reflexes could not be obtained. Absence of t corneal and gag reflexes is regarded as an ominous si in narcotic poisoning. The severity of the depression w also indicated by the low eosinophil count, which prob bly reflected activation of the adrenal cortex in respon to the anoxia.

In spite of the seriousness of the clinical picture, the was marked improvement in respiration within three

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6. Huggins.[3] Smith.[4]

four minutes after intravenous administration of N-allylnormorphine. Consciousness was regained in case 2 in 5 minutes, and in case 1 in 70 minutes. Unless N-allylnormorphine had been given, one would have expected that both patients would have remained in coma, with depressed respiration, for at least several hours. In fact, if N-allylnormorphine had not been available, both patients might have died. In a case cited by Bieter and Hirsh,[7] a patient who received 50 mg. of methadone in divided doses over a six hour period gradually became unconscious 8 to 14 hours after the last dose of methadone was administered. Despite supportive treatment, this patient died in shock.

N-allynormorphine is the ideal analeptic for the treatment of acute narcotic poisoning. It is effective in small doses, and it does not produce in man the convulsions that may occur if nikethamide or pentylenetetrazole (metrazol®) is used. The effect of N-allynormorphine is well sustained (two to three hours) as compared with the transient effects of nikethamide and pentylenetetrazole. The proper dosage of N-allylnormorphine for narcotic poisoning in man has not been established accurately. Until further information is available, patients should probably not be given more than 40 mg. of N-allylnormorphine in any single dose, since this drug is not entirely devoid of toxic properties.

## SUMMARY

Two cases of methadone hydrochloride poisoning are reported in which relief of toxic symptoms was obtained by administration of N-allylnormorphine.

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# GEOTRICHUM IN BLOOD STREAM OF AN INFANT

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*and*
*Lida Mattman, Ph.D., Detroit*

Geotrichosis, an infection rarely mentioned in the United States, is probably commoner than realized. Europe and certain South American countries have been aware of the fungus Geotrichum for many years and have reported its varying types of pathogenesis. There is increasing evidence that it will be found oftener in the United States when clinicians and laboratories become aware of its characteristics.

In France, Brumpt,[1] in an excellent summary of Geotrichum infections, listed 20 species reported by various writers. Reeves,[2] in the southern United States, reported 79 cases of bronchomycoses, two of which were geotrichosis. He stated that in geotrichosis the chest roentgenogram resembles that of chronic tuberculosis, with heavy studding along the bronchi and frequent cavitation. Kunstadter and Milzer [3] consider Geotrichum of sufficient importance to include Geotrichum extract with routine skin tests for detection of mycotic infections.

One of the most detailed discussions of this disease is that by Magalhães,[4] who reported extensive experience with pulmonary geotrichosis in Brazil. He found that geotrichosis of the lung resembles other conditions, such as tuberculosis, pulmonary syphilis, and various pulmonary mycoses. He divided Geotrichum cases into chronic and acute types. The acute form may be complicated by mycemia, which is capable of causing death 24 hours after onset. The organism has been found in every part of the body, including cells of the myocardium. Magalhães found that potassium iodide was an effective therapeutic agent, occasionally proving beneficial even when fluid had developed in the chest, and there was enlargement of the liver and spleen and joint swelling. Magalhães [4] cited the work of Labanio, in Brazil, who found that 4.0 to 8.8% of lung infections were tubercular and 1.0 to 1.5% were of Geotrichum etiology.

Primary Geotrichum infections have been reported in numerous parts of the body. Geotrichosis of the skin [5] and the interdigital areas [6] has been observed. Cortese [7] found Geotrichum in cultures and tissue sections from a patient with tonsillitis, and Almeida and Lacaz [8] reported the isolation of this organism in pure cultures from ulcerative lesions of the rectum. One case of geotrichosis of the conjunctiva was described by Maestro.[9] The patient, who responded to prolonged iodine therapy, had a bulbar conjunctivitis with a pseudomembrane. Kunstadter, Pendergrass, and Schubert [10] studied two cases of chronic bronchitis considered to be of Geotrichum etiology, and five cases of pulmonary geotrichosis have been seen by Smith [11] in North Carolina. The intestine is known to harbor Geotrichum frequently. Golay and Wyss-Chodat [12] found Geotrichum link in the intestines of 53.3% of psoriasis cases and in only 3% of persons without psoriasis. They speculated as to its role in this condition. Spontaneous gastritis in white mice, due to Geotrichum link, was reported by Magarinos Torres, Arêa Leão, and Salles.[13]

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There is much to support Castellani's[14] generalization that Geotrichum infections are clinically identical with those of Monilia and that they may be severe and fatal. As is true of Monilia, Geotrichum may be playing a harmless, saprophytic role when found in the lungs and should not be considered significant in sputum unless found in large numbers in repeated fresh specimens.

A description of the morphology and cultural characteristics of Geotrichum is given in several textbooks, manuals, and journal articles.[15] One of the most useful is the account in the *Manual of Clinical Mycology.*[16]

## REPORT OF A CASE

E. V., a 2-month-old Latin-American male, was admitted to the pediatric service of the Santa Rosa Hospital, Dec. 4, 1946, with the chief complaint that he was thin and did not gain weight. The informant, a paternal aunt, said that the child had been ill since birth. He had an occasional cold accompanied by cough. He had taken an evaporated milk formula well. The stools were soft and yellow and followed each feeding. The child did not vomit and slept well. He voided normally. He had been delivered at home by a midwife. He lived in a four room house with six persons, including the paternal grandparents. There were two siblings, aged 3 years and 14 months, respectively, in apparently good health. Familial diseases, such as tuberculosis, diabetes, cancer, or other chronic or wasting illnesses were not disclosed; later, however, it was learned that the mother had died of tuberculosis 27 days after the infant's birth.

*Physical Examination.*—The infant weighed 3.7 kg. His temperature was 98.0 F, pulse rate 130, and respiration 32 per minute. He was emaciated, dehydrated, and the sucking pads were prominent. He cried lustily when disturbed. There were no detectably enlarged superficial lymph nodes. The anterior fontanel was sunken. The lips were cherry red. The conjunctivas were moderately injected. The pupils were equal and regular and reacted to light. Both tympanic membranes were dull, giving a poor light reflex, but they did not bulge. The nostrils contained some dried crusts, and the nasal mucosa and the tongue were dry. The pharynx was moderately hyperemic but otherwise normal. The lungs were normal on auscultation and percussion. The heart was normal as to rate, rhythm, and absence of adventitious sounds. There was a small umbilical hernia, and the abdomen was moderately distended. No masses or enlarged viscera could be palpated. The genitalia were normal. No pathological reflexes could be elicited.

*Laboratory Data.*—The urine was acid and contained 1+ albumin. Microscopic examination revealed numerous coarse granular casts, a few fine granular casts, several pus cells, and an occasional red blood cell per high power field. The blood cell count on admission was hemoglobin 7.4 gm., red blood cells 3,500,000, leukocytes 8,250, of which 91% were polymorphonuclear neutrophils, 8% lymphocytes, and 1% monocytes. Two days later, the blood cell count was hemoglobin 6.5 gm., red blood cells 3 million, leukocytes 4,600, of which 71% were polymorphonuclear neutrophils, 27% lymphocytes, 1% monocytes, and 1% eosinophils. A rectal swab culture was negati for pathogenic organisms. The tuberculin patch test (Volmer) was positive.

A specimen of blood obtained by sternal puncture the day before the child's death was cultured for fungi, since histoplasmosis had been suspected before the tuberculin test was interpreted. Cultures of the blood on dextrose agar slants, Sabouraud's agar, and in cooked meat broth all showed heav growth of a yeast at 48 hours. This was later identified a Geotrichum by Dr. Norman Conant of Duke University. Th most interesting aspect of the blood examination at this tim was the finding of yeast hyphae in direct blood smears; man of these were the rectangular cells typical of Geotrichum.

*Hospital Course.*—The first three days the infant took h formula well and had three to four small, soft, yellow stoo daily. His temperature was normal most of the time, but ro to 101.2 F once daily. He did not vomit. On the fourth day, t day he died, he took small quantities of his formula slowly. H abdomen became distended, and his breathing was difficult.

*Necropsy.*—The body was that of a male Mexican infa 3,175 gm. in weight, of normal development but malnourishe emaciated, and dehydrated. The pupils were dilated; the buc mucosa was pale. Rigor mortis was absent. There were no e larged superficial lymph nodes. There was a paucity of su cutaneous fat. The thoracic and abdominal muscles were norm In the peritoneal cavity, there was a small amount of cle straw-colored fluid but no gas. The omentum was thin and sca The surfaces of the liver and spleen were studded with mili "tubercles." The abdominal viscera were normal in position, was the height of the diaphragm. The pleural cavities contain a small amount of clear, straw-colored fluid, but there were adhesions. The pericardial cavity also contained a small amo of clear, straw-colored fluid, but no adhesions. The thymus normal in size. The mediastinal lymph nodes were enlarg Both lungs contained innumerable miliary "tubercles." The he was grossly normal. The spleen was normal in size, studd with "tubercles," and its cut surface was wet. The liver was larged and firm. The cut surfaces revealed miliary "tubercl scattered throughout the entire tissue. The gastrointestinal tr was normal, as was the pancreas. The left adrenal gland peared normal, but the right adrenal gland contained a sin grossly demonstrable "tubercle." The kidneys were grossly n mal. There was slight engorgement of some of the cerebral v sels, but the brain and meninges were otherwise normal.

*Microscopic Examination.*—The liver showed cloudy sw ing, with many instances of "tubercle" formation. There w giant cells, with peripherally arranged nuclei scattered throu out the tissue. Sections of the spleen revealed congestion a miliary "tubercles." Sections of the lungs revealed areas edema, hyperemia, and invasion by inflammatory cells. Mili "tubercle" formations were noted, with giant cells of Langerha type in the peripheral areas. The centers of some of the "tub cles" showed necrosis and cystic changes. The kidneys show cloudy swelling with engorgement of blood vessels. Both adren showed areas of focal necrosis.

The initial site of Geotrichum infection leading hematogenous spread was not found, which is not s prising in view of the numerous possible sites mention in the literature and the gross pathological areas occ sioned by the numerous tubercles. Lung sections we studied repeatedly and, although acid fast bacilli we abundant, no yeast cells were seen.

## COMMENT

Obviously, it is difficult to comment on the role play by the fungus in this case. The occurrence of Geotrichu with the tubercle bacillus in the lungs has been previous reported.[17] The literature contains numerous instanc of fungus-tubercle bacillus associations,[18] and it is usual assumed that the tubercle bacillus prepares the lung f invasion by the fungus.

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Reports of tuberculosis existing with fungi other than Geotrichum are more numerous. Blastomycosis with tuberculosis has been reported by Ferris,[19] Wade and Bel,[20] Montgomery and Ormsby,[21] and Hektoen.[22] Hektoen described a case of dermal blastomycosis associated with pulmonary tuberculosis; the infections were distinct, with only one organism isolated from each site. Rappaport and Kaplan [23] reviewed reports of several cases of combined torular and tubercular infections, in addition to their own case. Coexisting tuberculosis and coccidioidomycosis has been described by Cherry and his associates.[24]

Some statistical data on the frequency of tuberculosis mycosis can be found in the reports of Almeida and Lacaz [25] working in São Paulo, Brazil, who found that, of 488 cases of mycotic infection, 4.09% were associated with tuberculosis. The case here reported emphasizes that the isolation of one pathogen does not preclude the existence of another in the same person. Simultaneous infection with two or more fungi in 42 cases has been reviewed by Muskatblit.[26]

## SUMMARY

A case of geotrichosis complicating miliary tuberculosis is described. To the authors' knowledge, this is the first case reported from North America in which Geotrichum was found in the blood stream.

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# A NEW SIGN IN DISSECTING ANEURYSM OF AORTA

## PULSATION OF A STERNOCLAVICULAR JOINT

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*and*
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Although the syndrome of dissecting aneurysm of the aorta has recently been the subject of many accurate descriptions [1] and can be diagnosed antemortem in a large percentage of cases,[2] frequently one encounters great difficulty in distinguishing this syndrome from other catastrophic illnesses, particularly acute myocardial infarction. Since 1946 one of us (R. B. L.) has noted the frequent occurrence of a new sign in dissecting aneurysm, which, if present, has been of help in distinguishing the two conditions, except when myocardial infarction occurred secondary to occlusion of the coronary arteries by the dissection.

The clinical characteristics of dissecting aneurysm are well known and require little comment. Symptoms depend on the extent of aortic dissection and the particular aortic branches involved. The usual history is one of sudden onset of tearing or crushing substernal pain, frequently radiating to the back, neck, shoulders, or epigastrium. Antecedent hypertension is common, and the blood pressure level is usually maintained during the acute episode, in contrast to acute myocardial infarction. Inequalities in blood pressure or pulse in branches of the innominate, carotid, or iliac arteries are often present. Hemiplegia resulting from involvement of the carotid arteries by the dissection may be the presenting finding, or the picture of renal infarction or mesenteric vascular occlusion may direct initial attention toward the abdomen. Bizarre neurological complaints or findings, including paralysis or paresthesias of extremities, may occur secondary to shearing off of intercostal or lumbar nutrient arteries to the spinal cord by the process of dissection. The occasional occurrence of aortic insufficiency following widening of the aortic commissures by the dissection is well recognized and often helpful in diagnosis. More detailed description of the pathogenesis, clinical syndrome, and prognosis is available elsewhere.[3]

If present, pulsation of either the right or left sternoclavicular joint may be vigorous or minimal. This sign depends on the sudden fluctuating increase in superior mediastinal pressure resulting from acute expansion of the aorta. We have not seen this phenomenon associated with the chronic aortic enlargement occurring in hypertension. The presence of a basal diastolic murmur may cause confusion in the differentiation of aortic insufficiency due to hypertension with a dilated aorta and that due to dissecting aneurysm. The presence of a pulsating sternoclavicular joint with aortic insufficiency, hypertension, and a dilated aorta has proved diagnostic of

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From the Medical Service, Grady Memorial and Emory University Hospitals, and the Department of Medicine, Emory University School of Medicine.

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dissecting aneurysm in our experience and does not occur in uncomplicated hypertension. Another entity that may simulate dissecting aneurysm is syphilitic aortic insufficiency with chest pain due to coronary ostial dsease. We have not seen pulsation of a sternoclavicular joint in this condition. In the absence of this sign aortic enlargement in hypertension and syphilitic aortic insufficiency must be differentiated on other grounds, but in the presence of pulsation of a sternoclavicular joint further diagnostic measures or speculation have proved unnecessary.

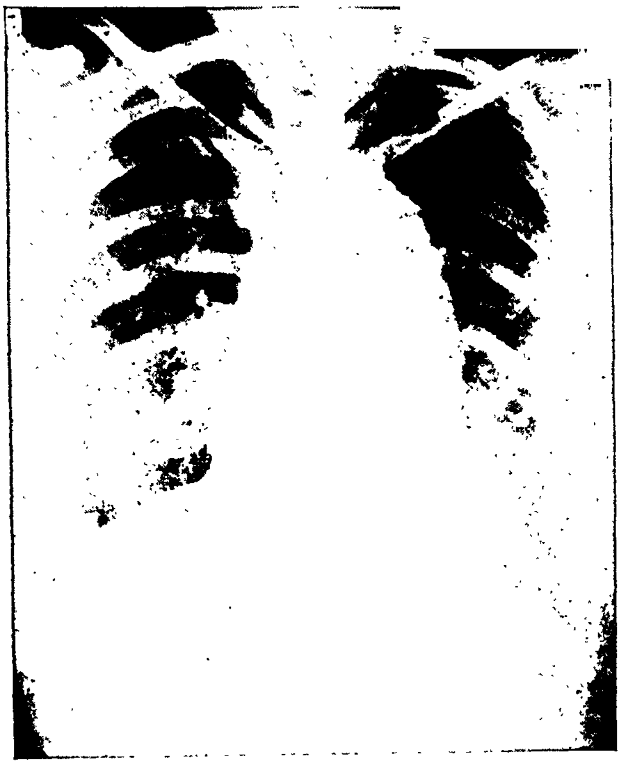

Fig. 1 (Case 1).—Roentgenogram of the chest, demonstrating elongation and dilatation of aorta with extension beneath the sternoclavicular junctions, left ventricular hypertrophy, and pulmonary congestion.

A pulsating joint has been of greatest value when prolonged, severe chest pain has occurred in a hypertensive person, and serial electrocardiograms have not shown the expected changes of myocardial infarction. There is, of course, a small group of patients with myocardial infarction in which diagnostic electrocardiographic changes do not occur. In this situation there may be difficulty in distinguishing between myocardial infarction without diagnostic electrocardiographic findings and dissecting aneurysm. If present, the pusating joint has proved diagnostic of the latter condition in our experience. Additional findings suggesting dissecting aneurysm after an episode of severe chest pain are (1) persistence of marked hypertension and (2) the prompt return of the blood pressure to excessive levels after transient shock. In dissecting aneurysm the electrocardiogram frequently shows "left ventricular strain," and this may cause confusion with the "subendocardial injury and ischemia" pattern seen occasionally in the initial stage of myocardial infarction or with pulmonary embolism. Furthermore, transient coronary insufficiency, myocardial infarction, or pericarditis may at times occur with dissection of the aorta. The occurrence of pulsating sternoclavicular joint in association with the electrocardiographic changes of the above conditions indicate that the underlying cause is dissecting aneurysm.

We have seen pulsating sternoclavicular joints in th following conditions other than dissecting aneurysm: (1) syphilitic aneurysm of the innominate, carotid, or subclavian arteries, (2) partial rupture of saccular aneurysm of the arch of the aorta, and (3) persistent right aortic arch. Normally the right aortic arch extends more cephalad than the left arch.

The following cases illustrate the occurrence and importance of pulsating sternoclavicular joint in dissecting aneurysm.

## REPORT OF CASES

Case 1.—E. W., an obese 34-year-old housewife, was admitted to Grady Hospital three hours after the onset of an acut episode characterized by severe substernal pain radiating dow both arms, transient weakness of both legs and the right arm and collapse. A similar but less severe episode had occurred tw years previously, and at that time hypertension was discovere Recovery had been uneventful.

The most striking physical findings on admission included al sent pulse and blood pressure in the right arm and a pulsati left sternoclavicular joint. Blood pressure in the left arm w 110/80 and remained at that level. Moderate delirium and mi mal congestive heart failure was present, and electrocardiogra revealed acute subendocardial injury secondary to coronary i sufficiency. Subsequent electrocardiograms revealed digita effect and nonspecific T wave abnormalities. Opiates were giv with prompt relief. A bedside chest roentgenogram revealed p nounced widening of the descending aorta and arch, consist with the admission diagnosis of dissecting aneurysm (fig. An interesting laboratory finding was a fasting blood sugar 204 mg. per 100 cc., which subsequently returned to nor

The clinical course was fairly satisfactory during the three weeks, although a recurrence of chest pain was noted the second hospital day. After this, symptoms of congestive h failure increased in severity, and the patient died suddenly the 33rd hospital day. Autopsy confirmed the diagnosis of secting aneurysm of the aorta involving, in addition, the inno nate, right subclavian, left common carotid, and the right r arteries. The terminal event was rupture into the pericar sac. There was no evidence of myocardial infarction.

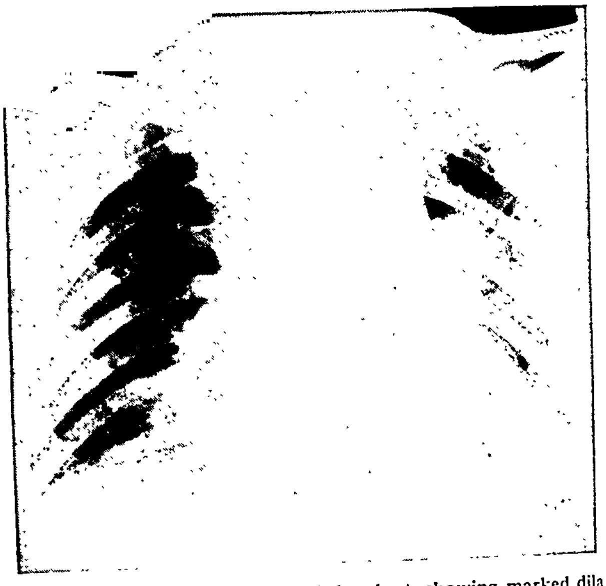

Fig. 2 (Case 2).—Roentgenogram of the chest, showing marked dila of the aorta with extension beneath the sternoclavicular junction, a ventricular enlargement.

*Comment.*—A clinical diagnosis of dissecting a rysm was apparent here, and the presence of a puls sternoclavicular joint merely strengthened the initia pression. Old healed dissecting aneurysm occurri the time of the first episode of chest pain two years viously seemed possible but could not be proved at mortem examination.

CASE 2.—J. H., a 73-year-old retired telegraph operator, had done well with treatment for long-standing hypertension and mild congestive heart failure prior to the onset of the present illness. While undergoing moderate exertion he complained of sudden severe precordial pain and immediately lost consciousness. He was given emergency treatment at home for shock and cyanosis and was transferred to Emory University Hospital.

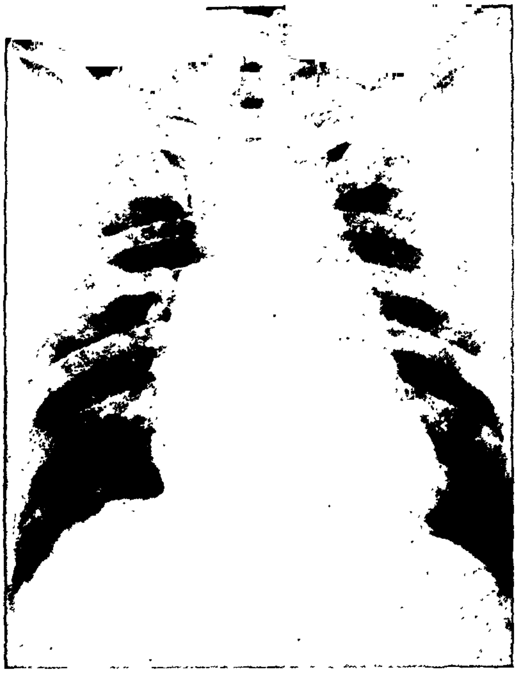

Fig. 3 (Case 3).—Roentgenogram of the chest, showing extensive dilatation of the whole thoracic aorta and left ventricular enlargement.

The patient had regained consciousness by the time he was admitted to the hospital, and persistent chest pain was relieved with opiates. Physical examination revealed Cheyne-Stokes respiration, paralysis of the left arm, cardiac enlargement without murmurs, and blood pressure of 180/90. An electrocardiogram was consistent with acute subendocardial injury, and a diagnosis of acute myocardial infarction with either cerebral thrombosis or embolism was made. An electrocardiogram revealed a "left ventricular strain" pattern the next day, and he was seen in consultation on the third hospital day. Striking observations at that time were pulsation of the left sternoclavicular joint and a loud murmur of aortic insufficiency, which had not been described on admission. The diagnosis of dissecting aneurysm of the aorta was made, and treatment with anticoagulants was discontinued. An x-ray of the chest revealed widening of the aorta and left ventricular hypertrophy (fig. 2).

The patient died suddenly on the next day, and postmortem examination confirmed the diagnosis of dissecting aneurysm with terminal rupture into the pericardial sac. There was no evidence of myocardial infarction, but the dissection had caused narrowing of the right coronary artery.

CASE 3.—J. J., a 48-year-old Negro laborer, was admitted to the hospital two hours after the onset of sudden severe substernal pain radiating to both shoulders and the epigastrium. Transient weakness of both legs occurred simultaneously. Past history was noncontributory. Examination revealed active pulsation of the right sternoclavicular joint, blood pressure of 180/100, normal peripheral arterial pulses, and moderate epigastric tenderness. Opiates relieved the pain.

The electrocardiogram was consistent with "left ventricular strain." The Kahn reaction was negative. A portable teleoroentgenogram of the chest revealed decided widening of the ascending, arch, and descending thoracic aorta, consistent with the clinical diagnosis of dissecting aneurysm (fig. 3).

The patient left the hospital on the fourth day and did not return for follow-up.

*Comment.*—In this instance the sign was again of diagnostic importance in distinguishing between myocardial infarction and dissecting aneurysm. Portable roentgenograms are commonly not as helpful as in this case, because of the normal distortion of aortic and cardiac size resulting from this technique.

CASE 4.—J. S.,[4] a 62-year-old retired lawyer, had been under observation for moderate asymptomatic hypertension for five years. While in another city he experienced sudden onset of severe substernal pain radiating to the right shoulder and accompanied by mild collapse and cyanosis. A diagnosis of myocardial infarction was made, although this was not confirmed by the electrocardiogram. He was kept in bed at home for five weeks. At the end of this time severe mid-back pain developed, which radiated to the left flank and testis. This was accompanied by transient "paralysis of the legs" and hematuria. A diagnosis of renal lithiasis and colic was made, and symptoms subsided. One month later he was admitted to Emory University Hospital, after another attack of severe substernal pain accompanied by syncope, cyanosis, and transient paralysis of the left leg.

The admission diagnosis was recurrent myocardial infarction. He was seen in consultation the next day, and a pulsating right sternoclavicular joint was noted. Blood pressure in the right arm was 110/100, as compared with 200/116 in the left. The right radial pulse was much decreased in magnitude. To and fro murmurs were heard at the angle of the left scapula in addition to an aortic systolic murmur. Cardiac enlargement was present, and the electrocardiogram revealed a "left ventricular strain" pattern. A diagnosis of dissecting aneurysm of the aorta was made, and opiates for pain and bed rest were prescribed. Chest roentgenogram revealed a diffusely dilated aorta and left ventricular enlargement.

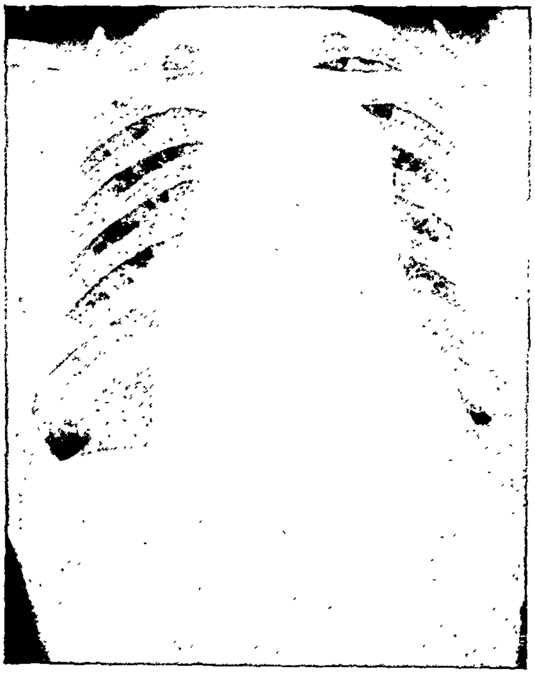

Fig. 4 (Case 5).—Roentgenogram of the chest, demonstrating generalized cardiac enlargement, pulmonary congestion, and marked elongation and dilatation of the aorta, with extension beneath the sternoclavicular junctions.

Clinical improvement was satisfactory, and the patient was discharged. The aortic width increased slightly over the next several months, and a surgical wrapping procedure was considered but was refused by the patient. Eighteen months after the initial episode of pain the patient died suddenly at home; permission for postmortem examination was not obtained.

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[4] Patient of Dr. Joseph C. Massee.

*Comment.*—This case illustrates the usefulness of pulsating sternoclavicular joint as a clinical adjunct in the diagnosis of dissecting aneurysm. Other common features of dissecting aneurysm were present and were initially confused with myocardial infarction, transient cerebrovascular accident and renal colic. Later it was though that all symptoms might be explained on the basis of extensive dissecting aneurysm.

Case 5.—F. J., a 65-year-old Negro, was admitted to Grady Hospital in March, 1949, two hours after the onset, while he was sweeping, of crushing precordial pain radiating to the left shoulder. Prior to admission he had been treated for six months in the clinic for hypertensive heart disease and congestive heart failure, with excellent results. Blood pressure had been about 180/120 mm. Hg.

Admission blood pressure was 240/140 in both arms, and a pulsating right sternoclavicular joint was noted. Peripheral pulses were normal, and cardiac examination revealed moderate enlargement and a grade 2 mitral systolic murmur. The electrocardiogram showed "left ventricular strain," and a portable chest roentgenogram revealed diffuse widening of the arch and descending portions of the thoracic aorta and cardiac enlargement consistent with long-standing hypertension (fig. 4). A clinical diagnosis of dissecting aneurysm was made.

By the next day the blood pressure had fallen to the previous level of 180/120, and the Kahn reaction was reported as weakly positive. Left thoracentesis produced 200 cc. of serosanguinous fluid; pulmonary infarction was not noted in the roentgenogram. Recurrence of chest pain was noted on several occasions during the next three weeks. One observer described a soft murmur of aortic insufficiency during the second week, but this was not confirmed by others. Impaired renal function was attributed to nephrosclerosis, although dissection involving one or both renal arteries was considered. The patient was discharged in relatively good condition after six weeks.

He was readmitted in December, 1950, 18 months later, because of pulmonary infarction. Cardiac compensation had been fairly well maintained in the interim, and a course of antisyphilitic therapy had been completed. Pulsation of the sternoclavicular joint was no longer present, but a soft murmur of aortic insufficiency was now definitely audible. The electrocardiogram and renal function were unchanged, and his convalescence was rapid. Four months later he was readmitted; h died after massive pulmonary infarction.

Postmortem examination revealed fresh pulmonary infarction and old healed dissecting aneurysm of the aorta. An intimal tear was present in the aortic arch, and the process extended to th diaphragm, sparing the renal arteries. The aortic valve cusp were normal, and there was no evidence of syphilitic aortitis Vascular nephritis was also present.

*Comment.*—A diagnosis of dissecting aneurysm rathe than myocardial infarction was made on the initial ac mission because of the pulsating joint and bloody pleur effusion. Survival for two years after dissecting aneurys is unusual but occasionally occurs. Syphilitic aortit could not be ruled out during life because of the positi serologic reactions and the presence of an aortic diastol murmur, but the fact that the murmur had not been pre ent on the first admission suggested that a dissecti aneurysm was the cause of the pain.

### SUMMARY

A brief clinical summary of dissecting aneurysm of t aorta is presented, and a new sign—pulsation of t sternoclavicular joint—is described. When present, t sign has proved of diagnostic significance in the rec nition of this syndrome. Five cases illustrating its i portance in the differential diagnosis of chest pain reported. Entities that present confusion in differen diagnosis are discussed, and the absence of this sign these conditions is pointed out.

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# METHYLANDROSTENEDIOL IN PALLIATIVE TREATMENT OF BREAST CANCER

*S. C. Kasdon, M.D., W. H. Fishman, Ph.D., R. M. Dart, M.D., C. D. Bonner, M.D.*
*and*
*F. Homburger, M.D., Boston*

In a preliminary publication [1] the need was emphasized for further critical evaluation of methylandrostenediol ($17\alpha$ methyl $\Delta^5$ androstene $3\beta$, $17\beta$-diol) as a potentially useful palliative agent in recurrent or inoperable mammary carcinoma. Results in 44 cases, 7 of which were previously reported, are described.

### PLAN OF STUDY

The patients studied, modes of administration and total dosage of steroid, and length of treatment are summarized in table 1. The dosage schedule was 25 mg. of methylandrostenediol six times per week for patie receiving oil suspensions, 100 mg. three times per we for those ambulatory patients receiving aqueous susp sions, and 100 mg. seven times per week for hospitali patients. Pellets (150 to 300 mg.) were given at one, t and four-week intervals. Oral medication was given 100, 150, 200, and 300 mg. daily doses. Twenty of patients were ambulatory and were seen at weekly int vals excepting those who received intramuscular inj tions, who were seen three to six times a week. The ot patients were hospitalized during the therapy.

In most cases examination of blood was done wee and in others at two and four-week intervals. Nonprot nitrogen, total protein, calcium, phosphorus, and al line phosphatase determinations were performed standard methods. X-rays were taken before therapy a at varying intervals during therapy of all patients. diagnoses were corroborated by biopsy or pathologi examination of the primary lesion after operation, a of recurrent lesions where possible. Autopsies w obtained whenever possible. Colored photographs of

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Dr. Dart is a Clinical Research Fellow, American Cancer Society, and Dr. Bonner is a Damon Runyon Fellow in Cancer Research.

Stenediol® and methostan,® brands of methylandrostenediol, were obtained from the Organon Company, Orange, N. J., and from the Schering Co., Bloomfield, N. J., respectively.

From the Cancer Research and Cancer Control Unit, the Department of Surgery and the Department of Medicine, Tufts College Medical School, Boston; the Jewish Memorial Hospital, Roxbury; the Holy Ghost Hospital, Cambridge; and the Boston Dispensary (Tumor Clinic).

Aided in part by grants from the United States Public Health Service, National Cancer Institute, Bethesda, Md.; the American Cancer Society (Massachusetts Division) Inc.; the Damon Runyon Memorial Fund for Cancer Research; and Institutional Grants of the American Cancer Society, Inc., New York; and the Medical Research Foundation of Boston, Inc.

visible lesions were obtained serially. Unless otherwise stated methylandrostenediol was the only therapeutic agent (except analgesics or narcotics in some cases) used during the therapeutic trial. When testosterone had been used previously, at least one month was allowed to elapse without therapy before treatment with methylandrostenediol was started. The clinical course of these patients during therapy was followed and recorded as showing "no improvement" (the disease taking its expected course without obvious change due to therapy); "subjective improvement" (increased sense of well-being, decreased pain, reduced need for analgesics and narcotics; in some cases, euphoria); or "objective improvement" (demonstrable restoration of lost motion of spine and/or extremities, weight gain without visible edema and sometimes accompanied by increase in total plasma protein, ossification of bone lesions detectable by roentgenologic examination; histological changes in biopsies from tumor metastases; measurable shrinking of soft tissue metastases). Complications were noted and described separately.

Table 1.—*Number of Patients Treated, Modes of Administration of Methylandrostenediol, and Dosages Used**

| | Oil Suspension (Injection) | Aqueous Suspension (Injection) | Pellets (Implantation) | Tablets (Oral) | Aqueous Suspension Followed by Oral Therapy | Aqueous Suspension Followed by Pellets | Oil Suspension Followed by Pellets |
|---|---|---|---|---|---|---|---|
| No. of patients | 2 | 19 | 12 | 7 | 2 | 1 | 1 |
| Total dose, mg. per patient † | 600 | 810-18,090<br>(5,050) | 600-12,400<br>(4,300) | 5,600-7,850<br>(6,340) | 10,600-12,950 | 19,400 | 1,740 |
| Duration of treatment, days per patient † | 28 | 8-201<br>(45.5) | 70-560<br>(203) | 28-82<br>(47) | 106-109 | 364 | 98 |

* The figures in parentheses represent mean values in each case.

† One patient, H. W., received methylandrostenediol in oil, in pellets, and in intramuscular injections of an aqueous suspension, a total of 19.4 gm. over a period of 360 days.

Table 2.—*Results of Various Modes of Treatment with Methylandrostenediol*

| | Oil Suspension (Injection) | Aqueous Suspension (Injection) | Pellets (Implantation) | Tablets (Oral) | Aqueous Suspension Followed by Oral Therapy | Aqueous Suspension Followed by Pellets | Oil Suspension Followed by Pellets |
|---|---|---|---|---|---|---|---|
| | | | | No. of Patients | | | |
| Objective and subjective improvement | .. | 3 | 3 | 1 | .. | 1 | 1 |
| Subjective improvement only | 1 | 11 | 5 | 4 | .. | .. | .. |
| Virilization | .. | 2 | 1 | .. | .. | .. | .. |
| Hypercalcemia | 1 | 2 | .. | .. | .. | .. | .. |

## RESULTS

The results are tabulated in table 2, and the case histories of four representative cases in which there was objective improvement are appended.[2] There were nine patients in whom objective as well as subjective improvement was noted. There were bone metastases in four cases, lung metastases in two cases, and soft tissue metastases in five cases. Eight of these nine patients were past the menopause, and they ranged in age from 43 to 74 years. While objective improvement was sometimes observed in one location, other metastases might continue to grow. The length of reasonably comfortable remission in these cases varied from three weeks to 19 months, averaging 8 months. Since five of these patients are alive at the time of writing, the average length of remission will further increase. In five patients remission was followed by relapse, which led to death in three cases within less than one month after onset of relapse, in spite of continued therapy. One patient committed suicide; another died of hypercalcemia; in the others the tumor was the direct cause of death. In one case only was a remission obtained a second time after relapse with treatment. The laboratory data in these patients were inconclusive. Two showed increases of previously low plasma protein levels to normal values. Three of the cases of objective improvement occurred in patients receiving pellets alone, and one each occurred in patients receiving intramuscular medication followed by implantation of pellets. Objective improvement also occurred in three patients given intramuscular injections of an aqueous suspension, and one in a patient (H. S.) receiving methylandrostenediol by mouth.

Twenty-one patients showed only subjective improvement. This ranged from increased well-being to euphoria. The improvement lasted for as long as six months, with weight gains in some cases but progressive tumor growth continuing in all patients of this group. Twelve of these 21 patients received intramuscular medication; five received pellets; and four were given the drug orally.

In summary of the results, it may be said that, out of 44 patients, 30 showed improvement, 9 of these objective improvement, while 14 showed no change in the progressive course of the disease while receiving methylandrostenediol.

Undesirable side-effects observed were, in order of decreasing gravity, (1) hypercalcemia (three patients), (2) hirsutism (three patients), (3) increased libido (two patients, including one patient [C. S.] who received a total of 18 gm. of methylandrostenediol and showed all three side-effects listed: hypercalcemia, hirsutism, and

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1. Homburger, F.; Kasdon, S. C., and Fishman, W. H.: Methylandrostenediol: Non-virilizing Derivative of Testosterone in Metastatic Cancer of Breast, Proc. Soc. Exper. Biol. & Med. 74: 162 (May) 1950.

2. The case histories of five additional patients in whom objective improvement was observed were omitted to save space but will be included in the reprints of this article.

erotic dreams), and (4) acne (three patients). Signs of congestion and edema were carefully watched for but did not occur in any of these patients.

## REPORT OF CASES

CASE 1.—H. W., a 51-year-old nulligravida, fours years after surgical menopause, underwent right radical mastectomy for scirrhous carcinoma simplex with metastases to 16 lymph nodes. She received x-ray therapy, 5,400 r, postoperatively. Two years later she was found to have multiple osseous metastases.

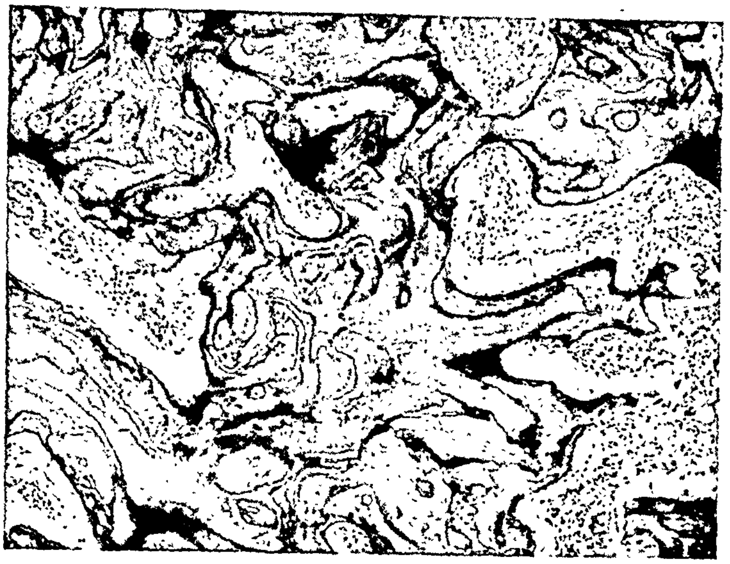

Fig. 1 (case 1).—Microphotograph (× 110) of bone, showing extreme calcification and resemblance to Paget's disease of bone.

She was given testosterone propionate (50 mg. three times weekly) for four weeks and responded with decreased pain, but the osseous lesions continued to multiply. After a month without therapy her disability, pain, and weakness became more pronounced, and for one month she was given methylandrostenediol (25 mg. in peanut oil intramuscularly daily for six days each week). She felt unusually well after two weeks of this therapy and returned to work as a waitress for the first time in six months. After an interval of six weeks, pellet implantation of methylandrostenediol was started, which was continued in low dosage levels of 60 mg. once a month for four months. She remained well and was able to bend over to tie her shoes, in spite of multiple metastases to several dorsal and lumbar vertebrae. Increasing sclerosis, such as is seen in patients given testosterone, was noted on x-ray examination. Toward the end of this period her course seemed to go rapidly downhill, pain increased markedly, and weakness made complete bedrest necessary. Opiates were used for the first time. She was transferred to the hospital and given 100 mg. per day of an aqueous suspension of methylandrostenediol. In two weeks she was fully ambulatory, required no analgesics, gained weight, from 148 to 157 lb. (67 to 71 kg.), and felt well once more. In spite of the administration of 7,300 mg. of methylandrostenediol during the 73 days in the hospital, no toxic or adverse side-effects were ever noted. In spite of x-ray evidence of metastasis to most of the bones, she was discharged to the Tumor Clinic, where she appeared each day (six days a week) for injections of 100 mg. of methylandrostenediol. A slight downy growth of hair appeared on her upper lip, and a transient papular skin rash on her low extremities responded to simple applications. She was able to care for herself, carry out simple household duties, and make her way to the clinic for treatment each day until increasing weakness culminated in her death. Autopsy showed an unusual degree of osteosclerosis (fig. 1 and 2) in many areas. A total of 19,400 mg. of methylandrostenediol was administered in a period of 12 months.

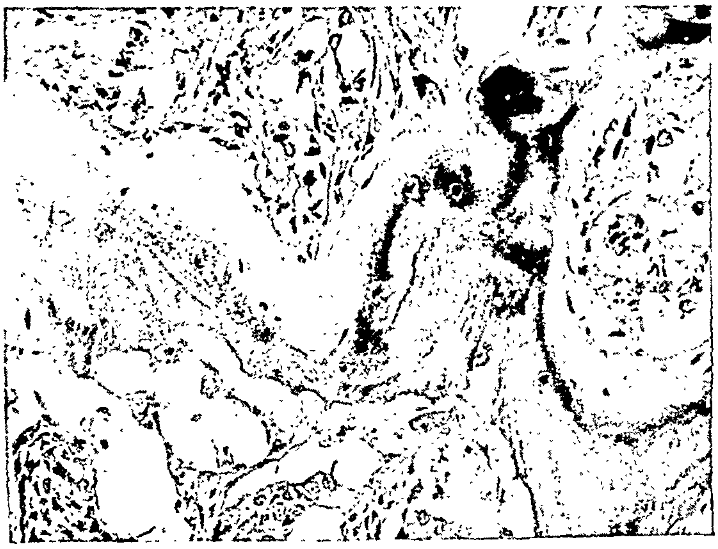

Fig. 2 (case 1).—Microphotograph (× 225) showing apposition of new bone with medullary sclerosis and pyknotic tumor cells.

CASE 2.—E. R., a 60-year-old secundipara past the menopause, was seen with an untreated inoperable adenocarcinoma, sweat gland type, of the right breast, involving ulceration of the entire breast and axillary metastases. Treatment with diethylstilbestrol (15 mg. daily) was started and was continued throughout her course. After two months, high voltage x-ray therapy (8,100 r with 200 k. v. machine) was added, the ulcerated lesions healed and became epithelialized, and the tumor mass decreased in size. While diethylstilbestrol therapy was continued without interruption, many skin nodules appeared during the next 17 months (fig. 3). Implantation of methylandrostenediol pellets (50 mg. subcutaneously at two-week intervals) was added to the estrogen therapy. The usual blood studies were made at two-week intervals. Within one month the nodules began to disappear, and after two months only pink flat soft areas remained in their place. A biopsy of one of these areas revealed marked regression of the tumor cells (fig. 4). Weight gain without visible edema, increased strength, freedom from pain or other complaints, and an increased sense of well-being followed. The dosage of pellets was increased to 150 mg. of methylandrostenediol, implanted subcutaneously at two-week intervals. There was no evidence on clinical or x-ray examination of renewed tumor activity. At no time have signs of hypercalcemia or other undesirable side-effects been noted. Toward the end of the first year after the start of methylandrostenediol therapy (3,600 mg. administered by pellet implantation) there was some increase in libido. At this writing, three years after her admission to our service, the patient is well and free from evidence of active disease.

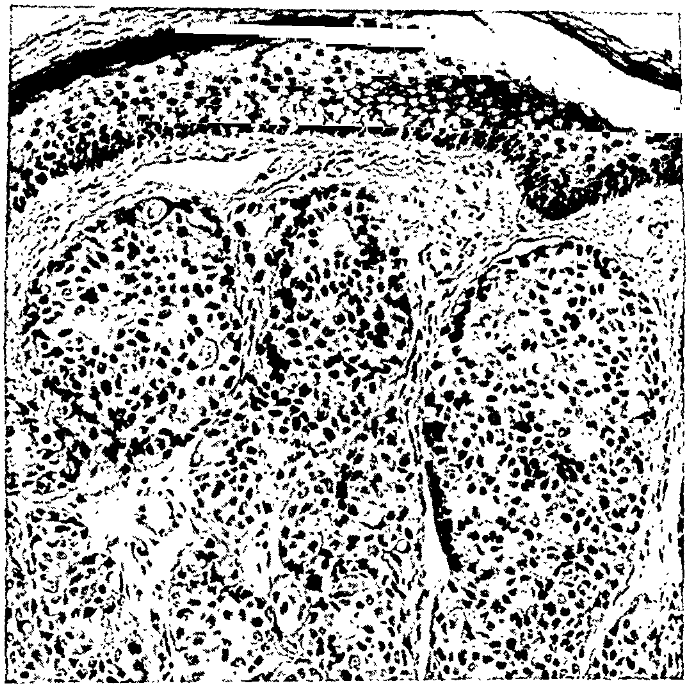

Fig. 3 (case 2).—Microscopic appearance of tumor nodule after 17 months of diethylstilbestrol therapy, showing mitotic figures and well-preserved tumor cells. (× 140).

Case 3.—C. S., a 51-year-old spinster, seven years after the menopause, had a left radical mastectomy for carcinoma with gland involvement. High voltage x-ray therapy was started, as well as a short course of diethylstilbestrol therapy. A fair response was obtained at first. She showed rapid deterioration and became bedridden, requiring narcotics several times daily for pain. She was admitted to the hospital, and one week after the beginning of methylandrostenediol therapy (90 mg. aqueous suspension intramuscularly daily), she was free from pain and dependence on narcotics. She became able to walk with some assistance and showed pronounced euphoria. The total dose of methylandrostenediol was 18,090 mg. Toward the end of therapy, after more than 200 days of treatment, hypercalcemia and rapid progression of the disease occurred, and the patient died.

Case 4.—H. S., a 73-year-old white woman, had a right radical mastectomy in 1946 for adenocarcinoma, followed by x-ray radiation to her left axilla. She was well until 1949, when symptoms and signs of osseous metastases developed, which were treated with x-ray and diethylstilbestrol. Two and a half months later she was hospitalized for a pathological fracture of the left femur and was treated with methylandrostenediol, 100 mg. orally daily. Eventually the dose was increased to 300 mg. orally daily. She then showed definite subjective improvement (freedom from pain), increase in weight and total plasma protein and demonstrable recalcification of bone (fig. 6). She continued to maintain this improvement for eight months. However, during this period of improvement new areas of metastatic disease have appeared.

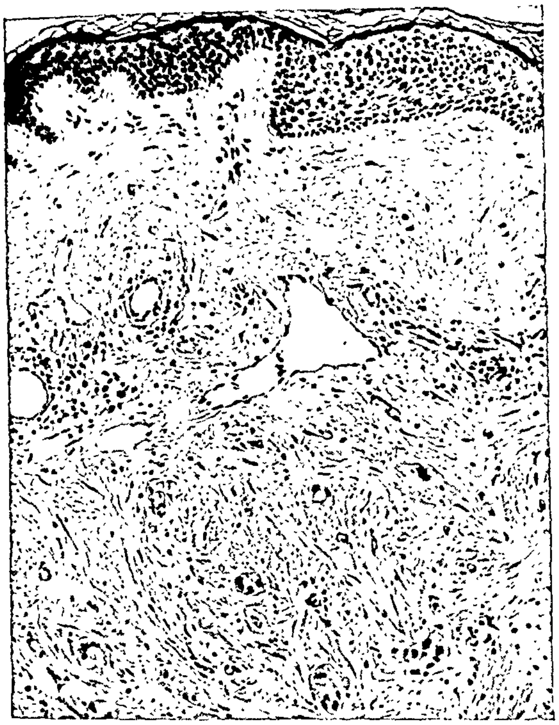

Fig. 4 (case 2).—Microscopic appearance of tumor nodule after two months of additional methylandrostenediol therapy, while diethylstilbestrol therapy was continued. Note pyknosis of nuclei, granular cytoplasm, and fibrosis. (× 140).

## COMMENT

The need for a palliative agent in cancer of the breast is evident, and both testosterone and estrogens have many undesirable side-effects that seriously limit their usefulness.[2a] Any new palliative agent for cancer of the breast should be at least as beneficial as testosterone and preferably have none of its toxic properties.

These studies indicate that treatment with methylandrostenediol resulted in palliation of breast cancer in 30 out of 44 patients (68%), with 9 (20%) showing objective improvement. Within the limitation of a small series, this is as good a statistical result as that reported for testosterone.

The favorable effects in responsive patients in the first month of therapy with methylandrostenediol occur more slowly than in a comparable period of testosterone therapy. The euphoria often seen with testosterone therapy is considerably less pronounced in the early stages of methylandrostenediol therapy. After this preliminary "latent" period, however, the results in responsive patients become similar in degree to improvements induced by testosterone therapy. This is particularly true of the objective changes. The euphoria induced by methylandrostenediol is usually less but may approach that produced by testosterone. As is the case with testosterone, the type of objective changes observed make it appear probable that the beneficial effects of this compound are mediated through its anabolic properties and that this is not a carcinolytic or directly carcinostatic agent.

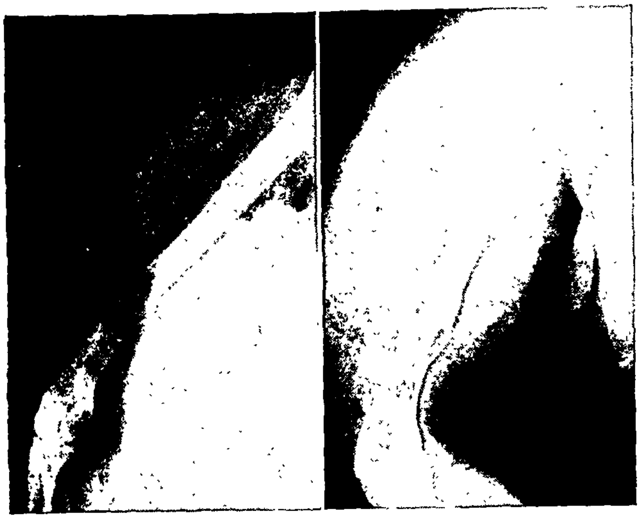

Fig. 5 (case 3).—Pathological fracture of humerus before (left) and after methylandrostenediol therapy.

This series is not extensive or homogeneous enough for conclusions to be drawn as to the optimal dose or preferable route of administration. It appears that all modes of administration used are capable of producing some desirable effects. The apparent effectiveness of subcutaneously implanted pellets has to be interpreted with caution, since the patients receiving pellets were all ambulatory outpatients with less advanced stages.

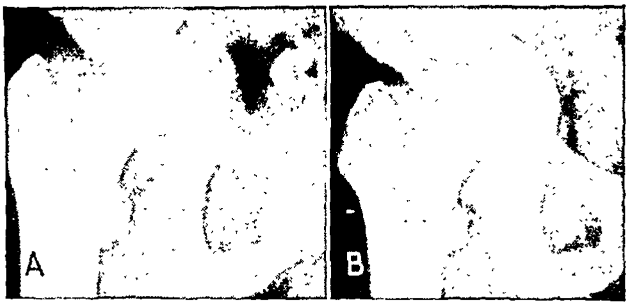

Fig. 6 (case 4).—Ossification of pelvic bones occurring during methylandrostenediol therapy. *A*, Dec. 27, 1950. *B*, May 10, 1951.

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[2a] Proceedings of the First Conference on Steroid Hormones and Mammary Cancer Sponsored by the Therapeutic Trials Committee of the Council on Pharmacy and Chemistry of the American Medical Association, Chicago, American Medical Association, 1949.

The nine patients showing objective improvement were past the menopause with one exception (G. M.). There were four cases of improvement in patients with bone metastases only, three in patients with soft tissue metastases alone, and two in patients with a combination of both. The distribution of cases of metastases in the entire group was as follows: 9 bone alone, 20 soft tissue alone, and 15 both bone and soft tissue. We do not believe that any conclusion as to the effectiveness of methylandrostenediol according to the type of metastases is possible at this time. One patient (C. S.) who had a good objective response to therapy also showed all the undesirable side-effects except one (acne). No other patient showed more than one undesirable toxic manifestation.

As might be expected, hypercalcemia occurred in two other patients with extensive osteolytic lesions.[3] In two patients this complication proved fatal. Acne and hirsutism were never as pronounced as they sometimes are in patients given testosterone. Enlargement of the clitoris or changes of the voice did not occur in any patient.

Except perhaps for hypercalcemia, the side-effects with methylandrostenediol therapy were decidedly less marked and less frequent than with testosterone therapy, and in no instance was cessation of therapy necessitated by undesirable toxic reactions, except in those patients with hypercalcemia.

## CONCLUSIONS AND SUMMARY

Forty-four patients with inoperable advanced cancer of the breast received methylandrostenediol for varying periods and by different routes of administration. There were 14 patients without demonstrable improvement attributable to therapy. Thirty patients showed improvement, measurable in nine of these by objective criteria. The amounts of testosterone necessary to produce similar beneficial effects in a comparable group of patients would certainly produce severe hirsutism, acne, voice changes, and virilization in many. Only minor side-effects were observed with methylandrostenediol, except for hypercalcemia in patients with extensive osteolytic lesions.

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[3] Hypercalcemia is known to occur without therapy in patients with osteolytic metastases, and it is, therefore, often difficult to determine whether elevated serum calcium levels are merely a symptom of the disease or have been precipitated by hormone therapy.

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**[illegible]s of Midforceps Operation.**—In the last 20 years it has become increasingly clear that high forceps operations are traumatic and often death-producing. Not many physicians, however, realize that midforceps operations also take their toll, and a high one indeed, of the babies. Not only is the fetal death rate much higher following midforceps than after lowforceps operations, spontaneous delivery and cesarean sections but the incidence of postpartum hemorrhage is considerably increased after midforceps deliveries. Furthermore, fewer women have babies after midforceps operations than after lowforceps deliveries and even cesarean sections. Many physicians will be startled by the . . . statement that except for spontaneous delivery, cesarean section is safer than midforceps deliveries and offers a greater probability of future childbirth. In several hospitals in the United States more than 1,000 consecutive cesarean sections have been performed without a single maternal death from any cause. I doubt that one can collect records of over 1,000 midforceps deliveries without a maternal death.—J. P. Greenhill, M.D., *1951 Year Book of Obstetrics & Gynecology*, Chicago, The Year Book Publishers, Inc., 1951, p. 202.

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# CLINICAL NOTES

## CONGENITAL AORTIC ANEURYSM

### REPORT OF A CASE

*Francis M. Woods, M.D.*
*and*
*Leo J. Kenney, M.D., Brookline, Mass.*

Congenital aneurysm of the aorta is a most unusual entity. We feel, therefore, that a description of such a case and its surgical management would be of interest.

### REPORT OF A CASE

E. A. L., a 15-year-old school girl, was referred by Dr. William P. McHugh of Cambridge, Mass., because a survey ches roentgenogram had disclosed an abnormal shadow in the uppe mediastinum. The patient had no subjective symptoms. Revie by systems elicited no cardiovascular or pulmonary symptom or other information of significance. As a child she had ha measles, chickenpox, whooping cough, and mumps. There ha been no other illnesses. Her parents and three siblings wei living and well.

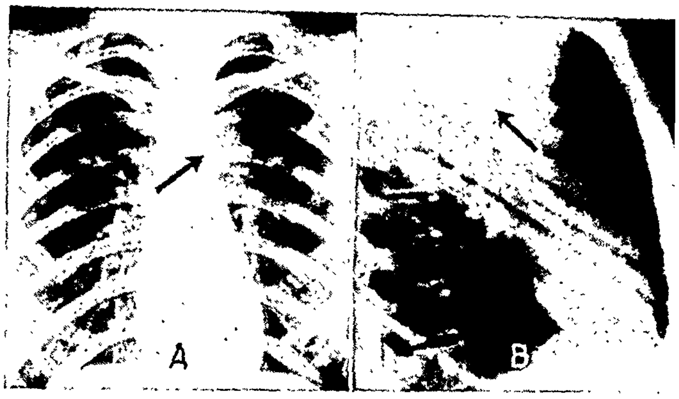

Fig. 1.—Roentgenograms showing density extending outward from t left of the upper mediastinum. *A*, posteroanterior view. *B*, left lateral vie

Physical examination revealed a well-developed, apparent healthy girl with no demonstrable abnormalities. The lung fiel were clear to percussion and auscultation and no murmur w heard anywhere over the chest. Results of routine laborato tests were normal, and the result of a blood Hinton test f syphilis was negative.

X-ray examination of the chest (fig. 1), including poste anterior and left lateral projections, disclosed a round, shar demarcated, homogeneous density, 3 cm. in diameter, exte ing outward from the left of the upper mediastinum. The les apparently was located just above the arch of the aorta and, ju ing by its appearance on the left lateral roentgenogram, attached to, or continuous with, the lateral surface of the tebral bodies. The lung fields were clear and no other abnorn ties were noted on the roentgenograms. Fluoroscopy gave further diagnostic clues. Pulsations of the mass were observed.

A diagnosis of mediastinal cyst appeared to be consi with the findings, but, as a tumor could not be ruled out, s cal exploration was advised. Therefore, on Dec. 13, 194 exploratory thoracotomy was performed on the left wit patient in the face-down position; a general inhalation anes was administered through an intratracheal tube. Grossl lung was entirely normal. There was an aneurysmal dila of the side of the aorta involving the first part of the de

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From the Overholt Thoracic Clinic, and the Department of S Tufts College Medical School.

Dr. Robert Gross, Childrens Hospital, Boston, loaned the Pott used in this case. Dr. Herbert Adams, thoracic surgeon at the Clinic, Boston, gave many suggestions during the operative proced

ing portion just below the arch (fig. 2). Its upper limit lay just inferior to the origin of the left subclavian artery. The aneurysm, which was shaped like an egg cut through its long axis, measured 4.5 by 3 by 2 cm. It was alarmingly thin-walled and pulsated slightly with a definite palpable bruit. A few extremely thin areas bulged and were blue in color. The possibility of rupture through these thin areas made gentle manipulations mandatory. The mediastinal pleura was opened and the involved portion of the aorta mobilized by dividing the ligamentum arteriosum and four sets of intercostal arteries. To control hemorrhage in the event of emergency, hernia tapes were passed around the aorta above and below the aneurysm and also around the left subclavian artery (fig. 3). A special Potts clamp with a 5 cm. bite, which had been devised for experimental surgery, was placed about the aorta from its medial side just opposite the aneurysmal bulge (fig. 4*A*). The aneurysm was thus excluded from the circulation and could be repaired. The normal tissues from the opposing sides at the base of the aneurysm were then approximated with a row of interlocking interrupted mattress sutures of 0000 silk on an atraumatic needle (fig. 4*B*). These sutures passed directly through both edges of normal aorta. A similar continuous suture was then used to reinforce the first line of sutures. This suture took bites of adventitia and media on alternate sides and incorporated the infolded aneurysmal sac against the closed mouth of the defect (fig. 4*C*). The Potts clamp was slowly opened; there was no leak and the aorta had been restored to its normal diameter (fig. 4*D*).

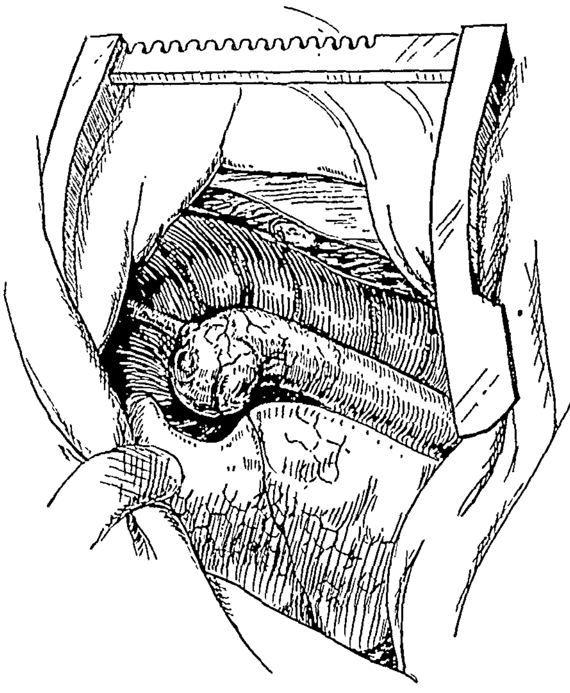

Fig. 2.—Drawing showing appearance of aneurysm when chest was first opened.

The patient's postoperative course was entirely uneventful. She was discharged from the hospital on the 11th postoperative day and was followed at regular intervals for 17 months. She gradually resumed all normal activities with no untoward effects. There was no evidence of recurrence on roentgenograms. On auscultation no murmurs or any other abnormal signs are heard.

## COMMENT

The techniques available for correction of arterial aneurysms are wiring, wrapping, excision, and closure. The first three methods would have had significant disadvantages in the situation described here. Wiring is appropriate in large aneurysms, particularly saccular aneurysms and those of luetic origin. In this case the aneurysm was too small and the neck too wide to control placement of the wire accurately. Furthermore the wire could not possibly have been passed through its thin wall without rupturing the sac. It would have been mechanically easy to encircle the aneurysm and the adjacent normal aorta with a wrapping, such as "cellophane." However, the ultimate degree of aortic constriction would have been unpredictable, and it might have been great enough eventually to produce complete occlusion.

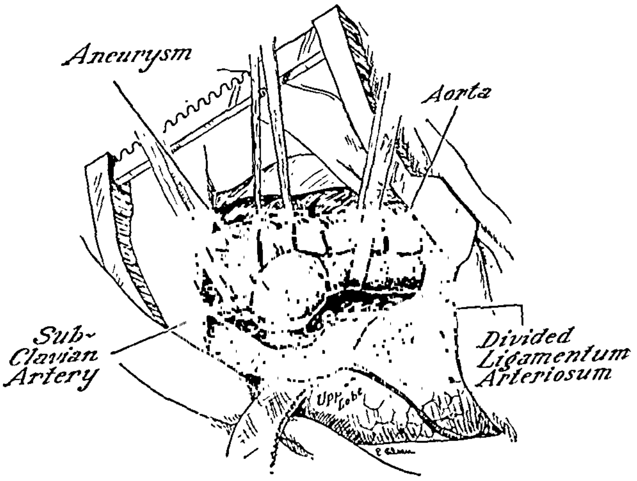

Fig. 3.—Drawing showing lesion after mobilization, with hernia tapes in place.

Excision is a method that would have been ideal, but it is doubtful if the lesion could have been completely resected and the inherent danger of this technique would have been far greater than with the method actually employed. Thus while the thin-walled sac could have been excised and the edges of normal vessel wall opposed, the method chosen was even simpler and safer. Essentially, the sac was infolded and tamponaded against the approximated edges of the defect. If the repair described had not held, an attempt would have been made to excise the aneurysm and fill the defect with an arterial

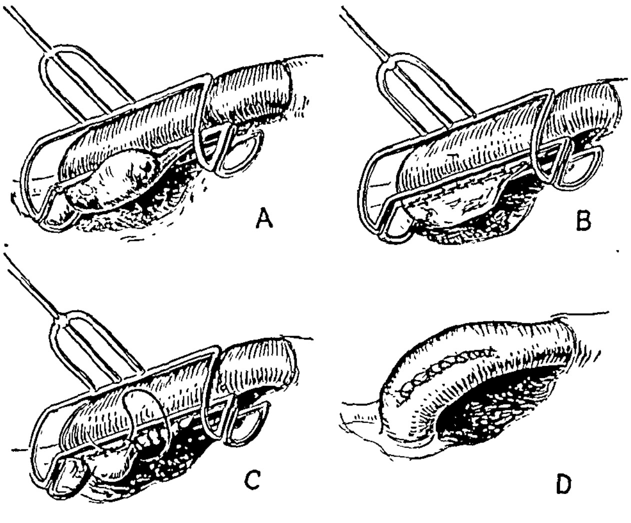

Fig. 4.—Drawings showing four stages of repair: *A*, the Potts clamp has been applied about the aorta. *B*, the first layer of interrupted interlocking sutures has been placed. *C*, a second layer of a continuous overlapping suture is being placed. *D*, completed repair after removal of Potts clamp.

graft. This would have been hazardous, because it would have required complete occlusion of the aorta for at least 10 to 15 minutes, and there had been no long-standing aortic obstruction to produce collateral circulation.

SUMMARY

A lesion discovered on a survey roentgenogram, which on surgical exploration proved to be a congenital aneurysm of the aorta, is described. Rupture of the aneurysm was a distinct possibility. The successful repair of the defect is described.

1101 Beacon St. (Dr. Woods).

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# PRIMARY HYPERPLASIA OF PARATHYROID GLANDS

## REPORT OF A CASE WITH COINCIDENT DUODENAL ULCER

*Hollis L. Albright, M.D.*
*and*
*Richard C. Kerr, M.D., Brookline, Mass.*

Hyperparathyroidism due to adenoma of the parathyroids has been recognized as a distinct disease entity, which is amenable to surgical therapy, for 25 years. An important addition to knowledge about the disease, resulting from the work of Fuller Albright and his colleagues, has been the recognition that in some instances hyperparathyroidism may be caused by generalized hyperplasia of all the parathyroid glands, rather than by adenoma alone. This generalized hyperplasia differs sharply from secondary hyperplasia of the parathyroids due to chronic renal disease in that it is a "primary disease," just as adenoma is. The hyperfunction caused by adenoma is indistinguishable by clinical or laboratory examination from primary hyperplasia. Primary hyperplasia of the parathyroids occurs in only about 9% of the cases of hyperparathyroidism,[1] and only 27 cases ave been reported in the literature. The coexistence of a odenal ulcer in this case is also of interest, as will e discussed.

REPORT OF A CASE

J. A., a 48-year-old Danish housepainter, was admitted to the private urological service of the Massachusetts Memorial Hospitals on May 12, 1948, because of pain in the right costovertebral angle. Because of a history of recurrent renal stones and maxillary bone cysts, the urologist, Dr. Samuel Vose, suspected hyperparathyroidism. Twenty years previously the patient had passed a small urinary calculus. Seven years previously he had been admitted to another hospital for an attack of renal colic on the right side. At cystoscopy a stone was found in the prostatic urethra; it was pushed into the bladder and crushed with a lithotrite. This procedure was repeated 10 days later for another prostatic stone. Two years previously the patient had been admitted for treatment of an alveolar cyst of the left maxilla. This was removed with a curet, and the pathological report described the lesion as a benign giant-cell tumor. At this time the urine showed a specific gravity of 1.015, no albumin, a rare white blood cell, and no red blood cells in the sediment. He had been admitted to another hospital 20 months previously because of swelling in the upper jaw on the right side. A giant-cell tumor was removed. During his convalescence in the hospital he passed a 3 mm. calculus, which on analysis was a phosphate stone. The blood nonprotein nitrogen level was 38 mg. per 100 cc. Two months previously the patient had been admitted to still another hospital because of massive hematemesis following a few days of epigastric pain. Gastrointestinal x-ray examination revealed a deformed duodenal cap and a small ulcer crater. A pyelogram showed a staghorn calculus in the upper calix and mild hydronephrosis of the right kidney, and two small calcifications in the calices of the left kidney.

On admission the patient complained of renal colic on the right side. The blood pressure was 180/106. Except for mild obesity and operative scars in the maxillas, results of the physical examination were not remarkable. No tumor could be felt in the neck. The serum calcium level was 12.8 mg. and the phosphorus level 2.5 mg. per 100 cc.; the alkaline phosphatase value was 4 Bodansky units. The hemoglobin value was 8.5 gm. per 100 cc., with 3,030,000 red blood cells, and the nonprotein nitrogen level varied from 41 to 50 mg. per 100 cc. The urine showed a 1+ reaction to a Sulkowitch test, and contained albumin (1+) and many white and red blood cells in the sediment. X-ray examination confirmed the presence of the previously described stones in the kidneys. Roentgenograms of th skull, ribs, and pelvis showed no bony abnormality.

At operation on May 22, 1948, an oblong parathyroid tumor 5.0 by 2.5 by 1.5 cm., was removed from behind the right lowe pole of the thyroid. On the left side a similar tumor in a simila location was removed; it measured 4.5 by 2.5 by 1.5 cm., an had a 2.0 by 1.4 by 0.9 cm. prolongation upward, which brok away from the larger mass. This smaller fragment may hav been the left upper parathyroid; other parathyroid tissue wa not identified. The two larger tumors are seen in figures 1 and The mass from the right side weighed 12.4 gm.; the masse from the left side were not weighed, but, by comparison wit the tumor from the right side, the total tissue removed mu have weighed more than 25 gm. The specimens were covere with a pinkish-grey capsule, and on cut section were yellowis brown in color, and soft and mushy in consistency, except f a few calcified plaques of tissue scattered through the tumo (fig. 2). The large tumor from the left contained a 6 mm. hemorrhagic cystic area at one end.

Microscopically the sections showed water-clear cells in gre preponderance. The tumor was surrounded by a thickene dense, fibrocollagen capsule. This capsule was continuous wi the trabeculations that formed a lacework supporting the cell of the gland. No fat cells were seen. Cells were arranged i pseudoacini, and in some areas in broad sheets. Some chief cell and oxyphil cells were seen. The water-clear cells showed typical thin membrane, with scantily stained cytoplasm. Th nuclei varied from vesicular to homogeneously darkly staine types. The nuclei tended to be situated along the basal aspec of the cell next to the supporting stroma. There was no evidenc of malignancy (fig. 3). Dr. Benjamin Castleman reviewed th slides in August, 1950, and stated that they indicated primar hyperplasia of the parathyroids.

At the time of operation the tumors were thought to b adenomas. Generalized hyperplasia of the parathyroid gland was not suspected. The patient did well postoperatively, an nine days after operation his serum calcium level was 9.1 mg and the phosphorus level 2.7 mg. per 100 cc. Four months afte operation the patient reported that at home he had had a "hear attack," with inability to breathe, and he was treated at hom with oxygen. Seven months after operation, the calcium leve was 11.4 mg. and the phosphorus level 4.0 mg. per 100 cc. the alkaline phosphatase value was 2 Bodansky units. Thes analyses were made at an outside laboratory, where it was state that the normal values for calcium and phosphorus were 9 t 12 mg. and 3 to 4.5 mg. per 100 cc., so that, according to thei technic, these values were within normal limits. The blood pressure at this time was 190/128, and the patient was being treate for hypertension. He was unable to work because of easy fatigue and feelings of tightness in his chest. His duodenal ulcer gave him some distress.

He was seen in the outpatient department of another hospital 18 months after operation, complaining of dyspnea on exertion

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Assistant Professor of Surgery, Boston University School of Medicine (Dr. Albright), and Second Assistant Visiting Surgeon, Massachusetts Memorial Hospitals (Dr. Kerr).

[1] Albright, F., and Reifenstein, E. C.: Parathyroid Glands and Metabolic Bone Disease: Selected Studies, Baltimore, Williams and Wilkins Company, 1948, p. 51.

and attacks of pain in his chest and throat. The blood pressure was 175/125, and the nonprotein nitrogen level 29 mg. per 100 cc. An electrocardiogram indicated atypical bundle-branch block. The urine had a specific gravity of 1.010, 2+ albuminuria, and many white blood cells. The calcium level was reported as 10.6 and 10.1 mg. and the phosphorus level 2.2 mg. per 100 cc. The alkaline phosphatase value was 3 Bodansky units.

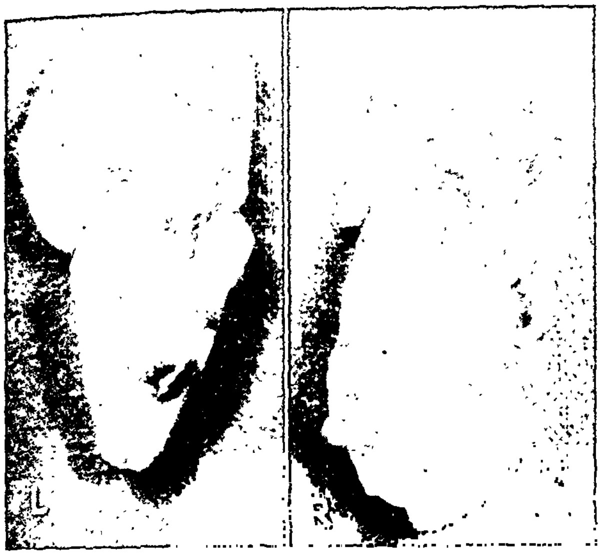

Fig. 1.—The parathyroid tumor from the left side measured 4.5 by 2.5 by 1.5 cm., from the right 5.0 by 2.5 by 1.5 cm. The additional fragment of the tumor from the left side, measuring 2.0 by 1.4 by 0.9 cm., is not shown.

Nineteen months after operation it was learned that the patient had had another massive hematemesis at home and had died. An autopsy was not performed.

## COMMENT

Since a parathyroid adenoma was removed from a patient with Recklinghausen's disease by Mandl [2] in 1926, the syndrome of hyperparathyroidism has been more and more widely recognized. In brief, the excess production of parathyroid hormone is accompanied by elevation of the serum calcium level, depression of the serum phosphorus level, and increased excretion of both calcium and phosphorus in the urine. As a result of the calcium and phosphorus loss, bony abnormalities may appear, either as generalized decalcification or localized cysts, often with pathological fracture. Because of the high concentration of calcium and phosphorus in the urine, kidney stones may appear, giving rise to appropriate urinary tract symptoms. Urinary symptoms appear in approximately 36% of the cases, and the bony changes in about 90%.[3] Generalized symptoms are chiefly muscular weakness (presumably due to the hypercalcemic atonia), and polydipsia and polyuria due to the increased excretion of salts in the urine. Gastrointestinal symptoms, rarely even simulating acute disease of the abdomen,[4] are reported less frequently. Recognition of the disease and appropriate surgical treatment results in cure if the organic changes have not progressed so far that permanent renal or bony damage has occurred.

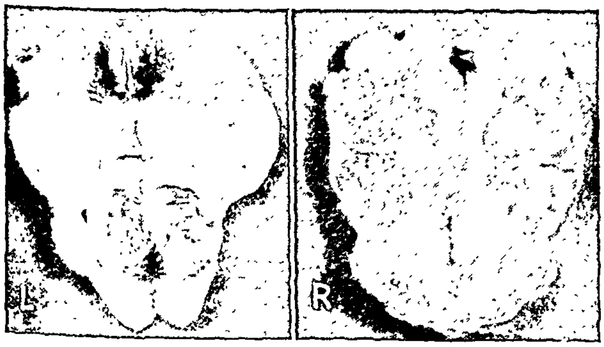

Fig. 2.—The cut surfaces of both tumors are shown. The capsules were pinkish-grey and the cut surfaces yellowish-brown, with soft mushy consistency. Note the hemorrhagic cystic area at the top of the tumor on the left.

The group at the Massachusetts General Hospital first recognized primary parathyroid hyperplasia as a cause of hyperparathyroidism, and published a report in 1934 [5] of three cases. Observation of these and subsequent cases showed that removal of only one or two enlarged parathyroid glands as a rule had no permanent effect on the course of the disease, or on the body chemistry. They went on to show that all the parathyroid glands had to be discovered and a subtotal resection done, leaving tissue of about the same bulk as two normal parathyroid glands. This method of surgical management was presented by Churchill and Cope,[6] and has been accepted as a satisfactory method of treatment.

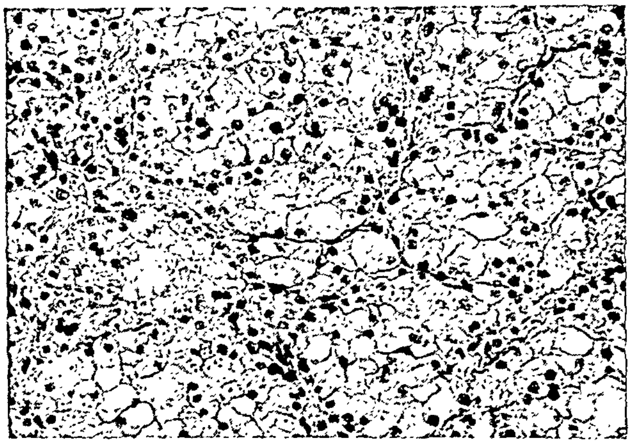

Fig. 3.—The water-clear cells, seen in primary hyperplasia of the parathyroid glands, are shown in great preponderance. Note the typical, thin cell membrane with scantily stained cytoplasm, and the basilar orientation of the nuclei.

Primary hyperplasia causes hyperparathyroidism indistinguishable from that caused by parathyroid adenoma, though Rogers and Keating [7] have suggested that hyperplasia may cause a somewhat milder form of the disease. The primary form is to be sharply distinguished from secondary hyperplasia, which is due to renal insufficiency.[8] When primary hyperparathyroidism has progressed to the stage of causing renal damage sufficient to reduce renal function permanently, the two conditions may be difficult to distinguish clinically. However, with renal damage the serum phosphorus level is likely to be elevated, and the serum calcium level reduced—the opposite of the condition usually produced by primary hyperfunction. Pathological examination of the involved glands usually distinguishes the primary and secondary states easily. Excellent discussions of the pathology have been presented by Castleman and Mallory.[9]

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[2] Mandl, F.: Therapeutischer Versuch bei einem Falle von Ostitis fibrosa generalisata mittels Exstirpation eines Epithelkörperchentumors, Zentralbl. Chir. 53: 260-264, 1926.

[3] Norris, E. H.: Collective Review: Parathyroid Adenoma: Study of 322 Cases, Internat. Abstr. Surg. 84: 1-41, 1947.

[4] (*a*) Gutman, A. B.; Swenson, P. C., and Parsons, W. B.: Differential Diagnosis of Hyperparathyroidism, J. A. M. A. 103: 87-94 (July 14) 1934. (*b*) Snapper, I.: Medical Clinics on Bone Diseases: A Text and Atlas, ed. 2, New York, Interscience Publishers, Inc., 1949, pp. 71-72.

[5] Albright, F.; Bloomberg, E.; Castleman, B., and Churchill, E. D.: Hyperparathyroidism Due to Diffuse Hyperplasia of All Parathyroid Glands Rather Than Adenoma of One: Clinical Studies on Three Such Cases, Arch. Int. Med. 54: 315-329 (Sept.) 1934.

[6] Churchill, E. D., and Cope, O.: Surgical Treatment of Hyperparathyroidism Based on 30 Cases Confirmed by Operation, Ann. Surg. 104: 9-35, 1936.

[7] Rogers, H. M., and Keating, F. R., Jr.: Primary Hypertrophy and Hyperplasia of Parathyroid Glands as Cause of Hyperparathyroidism, Am. J. Med. 3: 384-401, 1947.

Cases of primary hyperplasia constitute about 8 or 9% of all cases of hyperparathyroidism. Albright and Reifenstein [1] reported that eight cases had been seen at the Massachusetts General Hospital during a period in which 89 cases of hyperparathyroidism were seen at the same hospital, giving an incidence of hyperplasia of 9%. In 1947 Norris [3] collected 322 cases of adenoma, and in the same year Rogers and Keating [7] collected 26 cases of primary hyperplasia, an incidence of about 8%.

The number of cases of primary hyperplasia of the parathyroids which have been reported is difficult to establish exactly. Several of the cases were reported in the older literature, before the condition was elucidated, and the diagnosis is based on descriptions or illustrations of the slides. In the report by Rogers and Keating [7] they disagree on the classification of a few of the cases originally reviewed by Castleman and Mallory [9b] in 1935. One case that Rogers and Keating reject is that of Hunter [10] in 1931, in which two parathyroid tumors were removed. From the pathological description it certainly seems to belong in the primary hyperplasia group. This brings the total number of cases, including the one reported here, to 28. At least three other cases have been reported in recent years as instances of primary hyperplasia, but in one of these hyperplasia was almost certainly secondary to renal disease, another appeared to be due to adenoma, and no description or photographs were given for the third. It is interesting that in comparison with the situation with parathyroid adenoma, where the ratio of women to men is 3:1, in the 28 cases of primary hyperplasia there are 14 men and 14 women, a ratio of 1:1.

The cause of primary hyperplasia of the parathyroids remains unknown. Albright, Bloomberg, Castleman, and Churchill [5] in 1934 presented some evidence suggestive of an overabundance of some pituitary parathyrotropic factor, but Albright and Reifenstein [1] (1948) stated that there had been no further confirmatory evidence. They further investigated the possibility that enlargement of the cells was due to storing of the parathyroid hormone, but hormone assays by Dr. J. B. Collip showed no difference in hormone content from that of normal tissue.

An interesting point for discussion is the coexistence of a duodenal ulcer in our patient. In three of the four cases of primary hyperplasia reported from the Mayo Clinic,[11] the patients had duodenal ulcers. Of the other 24 patients reported, three were described as having digestive symptoms. One, a 56-year-old man reported by Paul,[12] is said to have had "gastric catarrh" for 30 years Another, a 35-year-old woman reported by Beyerinck, is said to have had pernicious vomiting for two years The third, a 51-year-old man reported by Thyssen, also had digestive symptoms. Thus four of the 28 case of primary hyperplasia had proved duodenal ulcers, an three other cases had digestive symptoms; in oth words, 25% of these cases showed upper digestive tra symptoms. Though digestive symptoms and abdomin pain are mentioned as occasional accompaniments hyperparathyroidism from adenoma, their occurrence far less frequent than this.

The relationship between excessive ingestion of ca cium and phosphorus in milk and antacid powders ar the disturbed metabolism of these substances in par thyroid hyperplasia is an interesting matter for spec lation; this subject has been mentioned by Rogers ar his co-workers.[11c] However, the possibility that ingesti of calcium or phosphorus in any way initiates the chan in the parathyroids is rendered doubtful by two piec of evidence. One is the experimental work of Drak Albright, and Castleman,[15] who administered phospha intravenously to rabbits. This results in a decrease blood calcium. It does produce hyperplastic changes the parathyroids, but the hyperplasia is of the patholog cal type seen in secondary parathyroid hyperplasia d to kidney damage, not the water-clear cell type seen primary hyperplasia.

The other evidence, more applicable to the questio is the group of six cases presented by Burnett and ass ciates.[16] In all of these cases there was a history prolonged and excessive intake of milk and absorbab alkali because of proved ulcer or ulcer symptoms. these patients there was hypercalcemia, without hyp phosphatemia or hypercalcuria, a normal serum alkali phosphatase level, renal damage with azotemia, a mild alkalosis and calcinosis. These patients showed i provement when their intake of milk and alkali prepar tions was reduced. Two of these patients had explorato operations of the neck. In one no abnormal parathyroi were seen, and biopsy of a parathyroid gland showe no abnormality. In the other enlargement of all the parathyroids was found, the pathological diagnosis being hyperplasia of chief and oxyphil cell types; apparently this was a secondary hyperplasia due to renal disease. These findings suggest that increased intake of calcium and phosphorus does not cause the water-clear cell type of hyperplasia.

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[8] (*a*) Castleman, B., and Mallory, T. B.: Parathyroid Hyperplasia in Chronic Renal Insufficiency, Am. J. Path. **13:** 553-574, 1937. (*b*) Albright, F.; Sulkowitch, H. W., and Bloomberg, E.: Hyperparathyroidism Due to Idiopathic Hypertrophy (Hyperplasia?) of Parathyroid Tissue: Follow-Up Report of Six Cases, Arch. Int. Med. **62:** 199-215 (Aug.) 1938.

[9] (*a*) Castleman and Mallory.[8a] (*b*) Castleman, B., and Mallory, T. B.: Pathology of Parathyroid Gland in Hyperparathyroidism: Study of 25 Cases, Am. J. Path. **11:** 1-72, 1935.

[10] Hunter, D.: Hyperparathyroidism: Generalized Osteitis Fibrosa with Multiple Osteoclastomata, Proc. Roy. Soc. Med. (Clin. Sect.) **24:** 486-496, 1931.

[11] (*a*) Albright et al.[7] (*b*) Rogers, H. M.: Parathyroid Adenoma and Hypertrophy of Parathyroid Glands, J. A. M. A. **130:** 22-28 (Jan. 5) 1946. (*c*) Rogers, H. M.; Keating, F. R., Jr.; Morlock, C. G., and Barker, N. W.: Primary Hypertropny and Hyperplasia of Parathyroid Glands Associated with Duodenal Ulcer: Report of an Additional Case, with Special Reference to Metabolic, Gastrointestinal and Vascular Manifestations, Arch. Int. Med. **79:** 307-321 (March) 1947.

[12] Paul, F.: Ostitis fibrosa generalista, Epithelkörperchen und Nebennieren, Beitr. path. Anat. **87:** 503-525, 1931, cited by Rogers and Keating.[7]

[13] Beyerinck, C. W.: Case of Tumors of Parathyroid Gland, Nederl. tijdschr. geneesk. **76:** 3389-3391, 1932, cited by Snapper.[4b]

[14] Thyssen, J.: Case of Hyperparathyroidism and Osteitis Fibrosa with Adenomatous Hyperplasia of All Parathyroid Glands, Ugesk. laeger **105:** 869, 1943, cited by Rogers and Keating.[7]

[15] Drake, T. G.; Albright, F., and Castleman, B.: Parathyroid Hyperplasia in Rabbits Produced by Parenteral Phosphate Administration, J. Clin. Invest. **16:** 203-206, 1937.

[16] Burnett, C. H.; Commons, R. R.; Albright, F., and Howard, J. E.: Hypercalcemia Without Hypercalcuria or Hypophosphatemia, Calcinosis and Renal Insufficiency: Syndrome Following Prolonged Intake of Milk and Alkali, New England J. Med. **240:** 787-794, 1949.

One aspect of the treatment of patients with both hyperparathyroidism and duodenal ulcer deserves mention. Administration of milk and alkaline powders to such a patient may precipitate parathyroid poisoning, with nausea and vomiting, lethargy, prostration, and azotemia, which may be fatal. Two such instances occurred among the cases reported by Rogers,[11b] in which therapy, directed at symptoms believed to be due to ulcer, apparently precipitated fatalities in patients who were not recognized as having hyperparathyroidism prior to death. He suggests that in a patient being treated for ulcer, unless there is x-ray evidence of gastric retention, intractable vomiting should suggest hypercalcemia.

## SUMMARY

A case of primary hyperplasia of the parathyroid glands with an associated duodenal ulcer is reported. At operation it was erroneously assumed that these tumors were parathyroid adenomas. The occurrence of hyperplasia in approximately 9% of the reported cases as a cause of hyperparathyroidism is discussed. The hyperparathyroidism in these cases is indistinguishable clinically from that produced by parathyroid adenomas. There have been 27 generally accepted cases of primary hyperplasia reported previously. The coexistence of symptomatic duodenal ulcer in four of these 28 cases (14%) of primary hyperplasia is discussed.

## ADDENDUM

Since this article was submitted for publication, another case of hyperparathyroidism due to primary hyperplasia of the parathyroid glands in a patient with coexisting duodenal ulcer has been reported from the Mayo Clinic.[17]

1265 Beacon St. (Dr. Albright).

[17] Robinson, A. W.; Black, B. M.; Sprague, R. G., and Tillisch, J. H.: Hyperparathyriodism Due to Diffuse Primary Hyperplasia and Hypertrophy of the Parathyroid Glands: Report of a Case, Proc. Staff Meet., Mayo Clin. 26: 441-446, 1951.

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**Congenital Pyloric Stenosis.**—The picture in pyloric stenosis is classic and the condition is easily diagnosed. The baby, usually male, seems normal at birth; from about five or six days to as late as three weeks after birth he begins to vomit occasionally. The vomiting becomes more frequent and forceful and finally is projectile, the vomitus being thrown several feet, partly through the nose. There is no bile in the vomitus. If the baby is watched closely after a feeding, contraction waves will be seen emerging from beneath the margins of the lower ribs on the left and passing across the abdomen to the right and slightly downward to disappear in the region of the pylorus. Often two and occasionally three waves are seen at once. With patience, in most cases a small hard tumor mass can be felt in the right portion of the abdomen slightly above the level of the umbilicus. The baby rapidly loses weight; the skin becomes wrinkled and the stools and urine scanty. Roentgenograms are rarely needed for diagnosis but when done show a high grade pyloric obstruction.—Richard Joseph White, M.D., Congenital Lesions of the Alimentary Tract in Infants and Children, *Texas State Journal of Medicine*, November, 1951.

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# ACQUIRED ICHTHYOSIS IN HODGKIN'S DISEASE

## REPORT OF A CASE

*John L. Welch, M.D.*
*and*
*Ervin Epstein, M.D., Oakland, Calif.*

In patients with Hodgkin's disease involvement of the skin by any of several lesions is well recognized. The onset of ichthyosis vulgaris in an adult with no previous personal or familial history of this disease is unusual. Therefore, the simultaneous occurrence of Hodgkin's disease and ichthyosis leads one to suspect a cause and effect relationship. Two cases of this combination have previously been reported.[1] In addition, one case of lymphosarcoma has been reported accompanied by acquired ichthyosis.[2] This association is considered to be of interest because the onset of ichthyosis in a patient with no other visible lesions may be the clue to an otherwise occult Hodgkin's disease or lymphosarcoma. In the following patient, the cutaneous lesion was the presenting complaint. A single painless lymph node was all but unnoticed by him; yet it disclosed the histologic diagnosis of Hodgkin's disease. From the dermatologic standpoint, the acquired ichthyosis was a sufficient clue to initiate a search for an underlying lymphoblastoma.

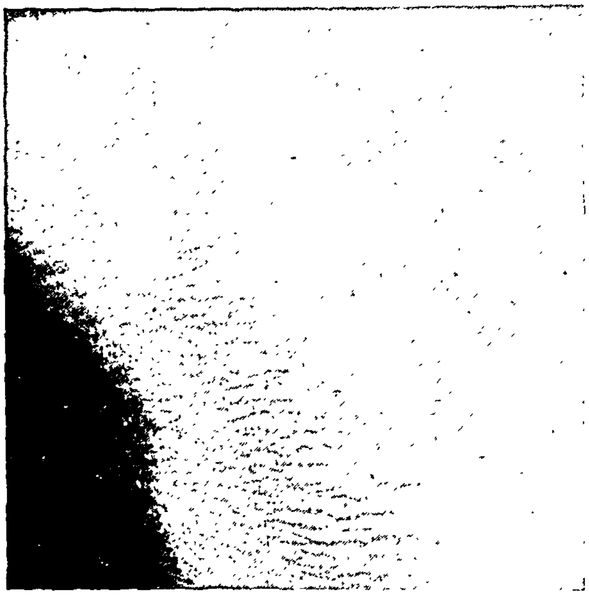

Fig. 1.—Skin of back at time of the patient's entry into the hospital.

## REPORT OF A CASE

The patient, a 55-year-old white man, was admitted to the hospital on March 5, 1951, with symptoms of dryness and cracking of the skin, accompanied by burning pain. He related that

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From the Medical Service, Veterans Administration Hospital, Oakland, Calif.

Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

[1] (*a*) Ronchese, F.: Ichthyosiform Atrophy of the Skin in Hodgkin's Disease, Arch. Dermat. & Syph. 47: 778 (June) 1943. (*b*) Glazebrook, A. J., and Tomaszewski, W.: Ichthyosiform Atrophy of the Skin in Hodgkin's Disease: Report of Case with Reference to Vitamin A Metabolism, ibid. 50: 85 (Aug.) 1944.

he had been well until 1946, when he noted the onset of rheumatoid arthritis, which became progressively severer until 1948. There had been intermittent remissions and exacerbations of joint symptoms. In October, 1950, he noted the onset of dryness of the skin of his legs, trunk, and back. This had become gradually more marked and caused him considerable discomfort. He had lost 15 lb. (7 kg.) in weight over the previous four-year period, but said he had no other symptoms, except residual pain and stiffness in some joints. His family history revealed no evidence of ichthyosis in his relatives.

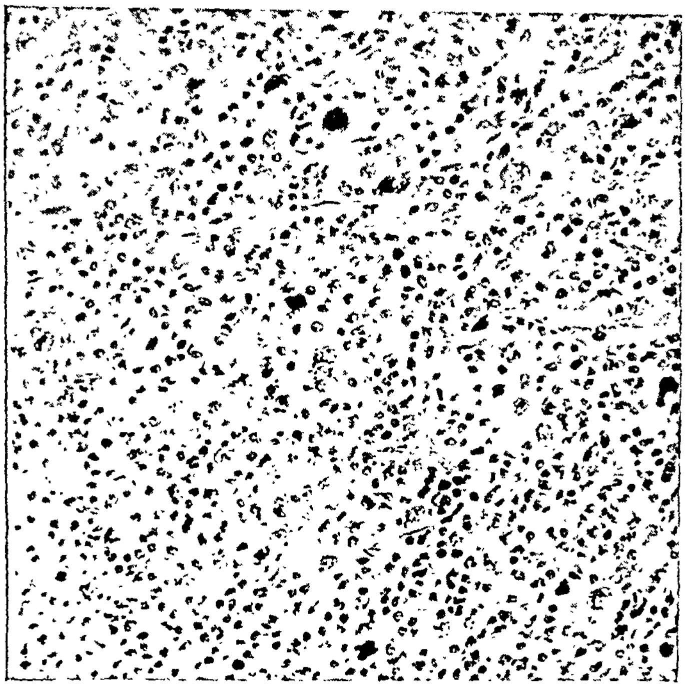

Fig. 2.—Section through axillary lymph node, showing Hodgkin's granuloma (× 200).

On physical examination, findings were normal throughout, except for his skin and an enlarged left axillary lymph node. His entire skin was dry, with considerable pseudoscaling. The cutaneous surface was divided into irregular polygonal areas by superficial lines traversing the skin in various directions, especially over the back, abdomen, and legs. A single large node was palpable deep in the left axillary fossa. It was smooth, fixed, and nontender. No other enlarged glands were noted.

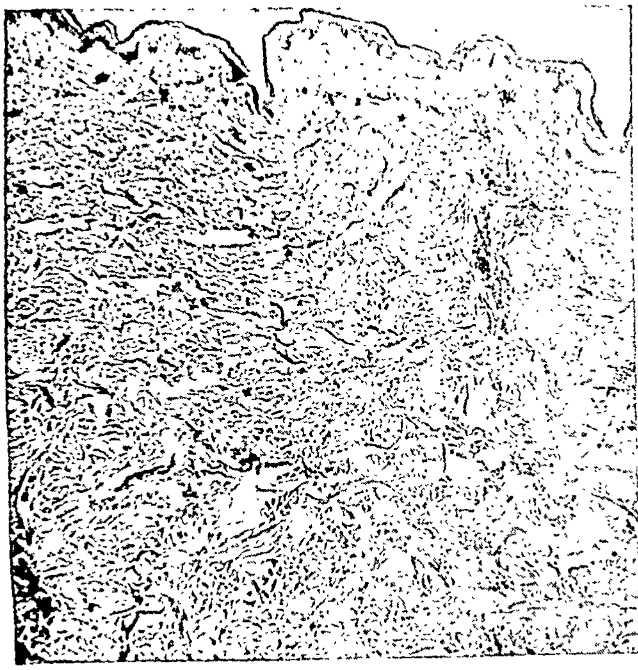

Fig. 3.—Section of skin of back, showing ichthyosiform atrophy.

Results of hematologic studies were normal except for a sligh predominance of neutrophils in the initial differential bloo count. The blood Kahn reaction was negative. Serum protei and the albumin-globulin ratio were normal. Results of live function studies, including cephalin flocculation, thymol turbidity, plasma cholesterol and esters, and sulfobromophthalein excretion, were all normal. Urinalysis disclosed no abnormalities. X-ray studies of the chest revealed no evidence of enlarged mediastinal nodes. X-rays of the abdomen showed no identifiable enlargement of the spleen. Studies of the upper gastrointestinal tract revealed coarsening of the mucosal pattern of the smal bowel, with clumping and segmentation of barium, a so-calle deficiency pattern, without visualization of tumefaction in th bowel wall.

Excision-biopsy of the enlarged axillary lymph node was carried out, and microscopic examination showed distortion of th normal nodal architecture by bands of fibrous tissue, and r placement of the major portion of the glandular parenchyma b a reticulum of connective tissue, supporting numerous large cel with one to several large, round, or irregular dark nuclei. I creased numbers of eosinophils were seen in some areas. R ticuloendothelial proliferation and numerous abnormal mito were noted. The capsule was thickened by dense connecti tissue. The histologic diagnosis was Hodgkin's disease of a lym node (Dr. Bruno Gerstl).

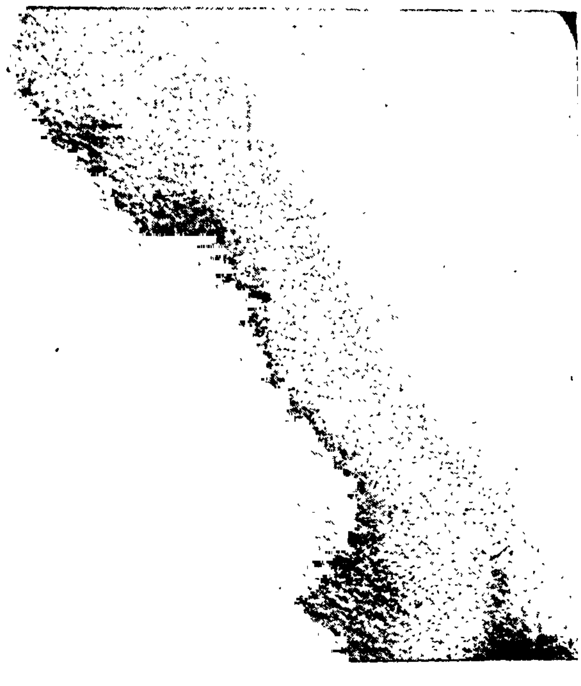

Fig. 4.—Skin of back at time of the patient's discharge from the hos

Biopsy of the skin showed diminution of the granulosa layer of stratified squamous epithelium with absence an diminution of rete pegs. Hyperkeratosis was noted in some ar The collagen fibers of the papillary layer appeared some more homogenous in staining and less acidophilic than thos the deeper layers. Only one sebaceous gland was noted in t sections. The histologic diagnosis was ichthyosis vulgaris.

Results of needle biopsy of the liver were interpreted as in normal limits.

After surgical removal of the single enlarged lymph n deep x-ray therapy was administered to the left axilla an the midabdomen, a total dose of 3,800 r being given ov period of 15 days. Vitamin A, 100,000 units, was given d orally. The patient's course in the hospital was favor Gradual weight gain was noted, and the skin dryness and fi ing gradually improved. No new lymph node or organ inv ment was noted, and he was discharged from the hospita May 10, 1951.

## COMMENT

The cutaneous lesions that occur in the lymphob tomas may be divided into those considered to be cific and those classified as nonspecific. The former those that show the histologic architecture of the un

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2. Glazebrook, A. J., and Tomaszewski, W.: Ichthyosiform Changes of the Skin Associated with Internal Diseases, Arch. Dermat. & Syph. 55: 28 (Jan.) 1947.

lying disease or occur with such frequency as to be considered characteristic of the disease. The nonspecific (or toxic or -id) lesions are those that frequently appear during the course of the lymphoblastoma but are not diagnostic of the basic process.

In a previous study of 156 cases of Hodgkin's disease,[3] 83 (53.2%) were found to have involvement of the skin. Nonspecific lesions occurred four times as frequently as specific ones (51 as against 12 cases). In the former group, the following lesions were noted: hemorrhagic lesions (4 cases), pigmentation (15 cases), pruritus (12 cases), maculopapules (12 cases), herpes zoster (4 cases), bullae and vesicles (3 cases), and stomatitis and urticaria (1 case each). The specific lesions included exfoliative erythroderma (8 cases), ulcers, sinus formations, and nodules (2 cases each). The absence of ichthyosis is noteworthy.

The type of ichthyosis discussed in this paper could not be considered as a histologically specific lesion, as microscopically the picture is indistinguishable from that seen in congenital ichthyosis. However, further experience may prove that it is a clinically specific lesion.

The fact that liver disease was found in two of the three previously reported [4] cases in association with low serum vitamin A levels has led to the hypothesis that interference with vitamin A metabolism in the liver is responsible for the skin manifestations of ichthyosis. Investigation of the vitamin A metabolism in congenital ichthyosis has been carried out,[5] and the value of vitamin A therapy in this condition has been advanced by some [6] but refuted by others.[5] The onset of ichthyosis in a soldier with jaundice, and what was thought to be cirrhosis, was noted by one of us (E. E.) in 1944, but follow-up of the case was not possible.

Although vitamin A studies were not carried out in our case, the absence of symptoms of night blindness and lack of follicular hyperkeratosis suggest that avitaminosis A may not have been severe. The amelioration of the skin condition during oral vitamin A therapy coincided with general systemic improvement following x-ray irradiation and hence cannot be said to have been solely a response to the drug.

This is the third case of acquired ichthyosis reported in Hodgkin's disease. One case has previously been reported in association with lymphosarcoma. We have been unable to locate any report of this occurring in any other condition. In the one case associated with cirrhosis, adequate follow-up may or may not have eventually disclosed that the patient was actually suffering from Hodgkin's disease, primary in the liver. Therefore, one may suspect that acquired ichthyosis is a toxic eruption, due to Hodgkin's disease. Certainly, its appearance should make the clinician suspect that the patient has a more serious condition than the simple ichthyosis.

## SUMMARY

A case of acquired ichthyosis is reported, in which Hodgkin's disease of a lymph node was discovered subsequent to hospitalization. The exact mechanism by which Hodgkin's disease influences the development of ichthyosis is not known, but it is thought by some to be due to liver damage and impairment of vitamin A metabolism. These factors were not shown to be operative in this case. The appearance of acquired ichthyosis vulgaris should suggest to the clinician the possibility of co-existing Hodgkin's disease or lymphosarcoma.

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[3] Epstein, E., and MacEachern, K.: Dermatologic Manifestations of the Lymphoblastomata-Leukemia Group, Arch. Int. Med. **60**: 867 (Nov.) 1937.

[4] Glazebrook and Tomaszewski.[1b, 2]

[5] Peck, S. M.; Glick, A. W., and Chargin, L.: Vitamin A Studies in Cases of Ichthyosis, Arch. Dermat. & Syph. **48**: 32 (July) 1943.

[6] Rapaport, H. G.; Herman, H., and Lehman, E.: The Treatment of Ichthyosis with Vitamin A, J. Pediat. **21**: 733 (Dec.) 1942.

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# HERETOFORE UNDESCRIBED AEROBIC SPORE FORMING BACILLUS IN CHILD WITH MENINGITIS

*Dan P. Boyette, M.D., Ahoskie, N. C.*
*and*
*Fred L. Rights, Ph.D., Detroit*

The encountering of a new organism, which, on competent bacteriological study, is found to be one never before described and not known to be naturally pathogenic, is an experience we feel should be recorded. We believe the following case report will interest both the clinician and the bacteriologist.

### REPORT OF A CASE

On Dec. 5, 1948, a 5-day-old Negro boy was examined because of convulsions. He had been delivered at home by a midwife after a full-term, uncomplicated pregnancy. Neonatal course was uneventful until the night before the day of admission, when the first convulsion occurred. He was breast fed, and the mother showed no signs of illness. Family history was noncontributory. There were no concomitant or recent illnesses among the siblings or the parents. When the infant was first seen by us, physical examination showed negative results. The cord was sloughing from the umbilicus and the temperature was normal. While in the clinic, the infant had a mild, generalized, tonic-clonic convulsion. Tetany of the newborn infant was suspected, and 5 cc. of 10% solution of calcium gluconate was administered intravenously, with immediate relief of the convulsion. Vitamin K, 5 mg., and 1,500 units of tetanus antitoxin were given prophylactically. The child was kept at the clinic for further observation. In a few hours, the convulsion recurred; at this time, admission to the hospital was advised.

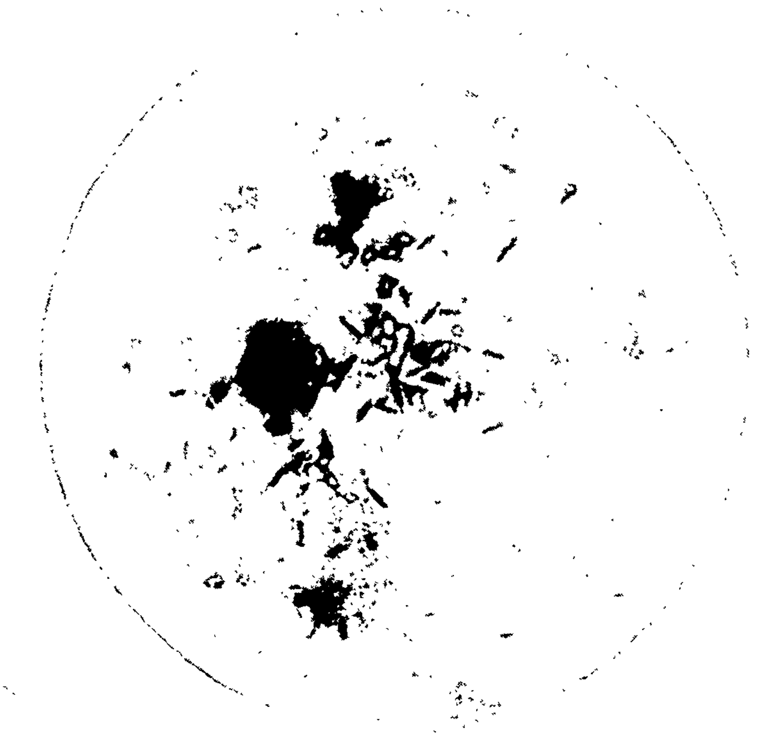
On admission, no further positive physical findings were noted, but lumbar puncture revealed bright yellow, cloudy spinal fluid under no increased pressure. The white blood cell count was 4,500 per cu. mm., with 95% polymorphonuclears, and direct smear of the sediment revealed a number of small, slender, gram-negative rods. We thought that we were dealing with Hemophilus influenza meningitis of the newborn infant. Dihydrostreptomycin, 0.1 gm. every three hours, and sulfadiazine, 0.25 gm. every four hours, were prescribed.

On the following morning, the infant's condition was aggravated; the fontanel was bulging; the neck was stiff; and the temperature was 103.6 F. At this time, examination of the cultured spinal fluid revealed a large gram-negative bacillus with early spore formation. The appearance was peculiar in that the spore was subterminal, not completely differentiated from the remainder of the organism, and was trailed by the greater portion of the body of the bacillus. The technician reported a superficial resemblance to spermatozoa (see figure).

It was now certain that this was not a case of H. influenza meningitis. Penicillin, 20,000 units every three hours, was added to the therapy. The infant's condition became progressively worse, and he died on the third hospital day.

*Autopsy.*—Autopsy, performed six hours postmortem, revealed no abnormal findings beyond the central nervous system. The brain was covered with a thick, grayish exudate, and the base of the brain was almost liquefied. The umbilical cord had recently dropped off, and the stump was clean. The umbilical vessels in the abdomen were patent and showed no signs of infection. All the organs were normal. Cultures of the heart blood, liver, and umbilical vessels were sterile. Culture of the brain revealed the same organism that was obtained from the original lumbar puncture. Sections from the various organs contributed no information of importance.

*Bacteriological Study.*—The organism in question proved to be a large, gram-variable, spore forming, aerobic bacillus, which, in young cultures, appeared as pleomorphic gram-negative rods. The enlarged portion of the pleomorphic rod did not look like a spore on first examination, since the spore walls were thick and stainable and remained undifferentiated from the remainder of the organism. These large, swollen, subterminal ellipsoidal spores developed in 48 hours and stained darker than the vegetative portion of the organism, which, after 18 hours, became gram-negative. The spore forming nature of this organism was further demonstrated by its resistance to heat. Vials of emulsion of the culture immersed in a water bath at different temperatures showed the following survival times. If the temperature was 50, 60, or 80 C, there was growth after two hours of exposure; however, if the temperature was 100 C, there was growth after 15 minutes' exposure but not after 30 minutes' exposure.



Photomicrograph of smear from 24 hour culture of the organism, showing the bacillus, early spore formation, and spores.

Young colonies on a dry, nutrient agar plate were large, white, flat, and translucent. In 48 to 72 hours, the colonies became light tan, dull, opaque, raised, slightly rough, and tenaciously adherent to the agar surface. Growth in semi-solid agar or on the surface of media containing glucose revealed a highly active motile rod that swarmed across the surface. Appreciable amounts of ammonia were produced by growth on nutrient agar media after it had stood unopened for several days.

The other pertinent cultural characteristics may be summarized as follows. Lactose, xylose, mannitol, methyl red, acetyl-methyl-carbinol, citrate, indol, and hydrogen sulfide were not fermented. The organism produced acid from sucrose, with no gas, and also from dextrose, with no gas, and a final pH of 5.0. Starch was not hydrolyzed, and there was slow liquefaction of gelatin.

The organism was not pathogenic for mice by the usual routes of inoculation but was mildly pathogenic when injected intracerebrally, producing a transient and occasionally fatal meningitis. One of every three mice so inoculated died in seven days, and the organism was recovered.

In vitro sensitivity studies on the organism revealed the following data: the organism was resistant to 50 mg. of sulfadiazine and to 20 mg. of streptomycin but was sensitive to 0.25 units of penicillin.

## COMMENT

Culturally and morphologically, this organism is presumably related to Bacillus circulans,[1] but certain features, especially its inability to hydrolyze starch, set i apart from B. circulans on a strictly toxonomic basis. A review of all available literature fails to reveal any mention of such an organism; however, it must be recognize that members of the genus Bacillus frequently show characteristic sufficiently variant to preclude the consideration of this organism as an entirely new species, but is certainly a heretofore undescribed variant.

It is supposed that the umbilicus was the portal o entry in this case, although there was no obvious sig of infection about the umbilical vessels at the time o autopsy. There is only speculation as to the origin of th recovered organism. In retrospect, penicillin was th drug of choice and possibly could have effected recover had it been administered early in the course of the disease.

## SUMMARY

A case of meningitis in a 5-day-old Negro boy du to a heretofore undescribed aerobic spore forming bacillus is discussed with a detailed report of the course o illness and autopsy findings and with a complete description of the bacteriological study made of the bacillu According to in vitro sensitivity studies, penicillin i effective against this organism.

217 W. Main St. (Dr. Boyette).

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[1] Bergey, D. H.: Bergey's Manual of Determinative Bacteriolog ed. 6, Baltimore, Williams and Wilkins Co., 1948, p. 722.

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**Confidence and Hope.**—Honesty of purpose and determinatio to succeed stand out in a doctor's attitude and create confidenc and hope in the patient. Obviously, half-hearted vacillatio creates doubt and anxiety. That miserable self-protective proces of hedging on diagnoses by making every possible guess an sharing the resulting doubts *with the patient is plain* cowardice If we are to produce the useful sentiment of hope in patients we must be both hopeful and honest. If we are to inspire faith we must be wholeheartedly determined to *do our best.* If w are to inspire courage, we must have and show it ourselves.—John J. Noonan, M.D., Practical Aspects of Doctor Patient Relations, *The Journal of the International College of Surgeons* December, 1951.

# COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

*The Council on Physical Medicine and Rehabilitation has authorized publication of the following article.*

RALPH E. DE FOREST, M.D., *Secretary.*

## AVAILABILITY OF MATERIALS FOR PHYSICAL MEDICINE EQUIPMENT

The Council on Physical Medicine and Rehabilitation, through a letter signed by the Chairman, Frank H. Krusen, M.D., requested of the National Production Authority, a division of the Department of Commerce, adequate supplies of materials for the manufacture of physical medicine equipment. The cordial spirit of cooperation is exemplified in the following letter from the National Production Authority, signed by Mr. Howard A. Pringle, Director, Scientific and Technical Equipment Division. The letter, dated Nov. 26, 1951, addressed to Dr. Krusen follows:

"We appreciate very much your letter of October 23rd and your interest in the Government's efforts to make adequate provision for equipment and supplies used in physical medicine and rehabilitation.

"In administering that part of the Defense Production Act for which it is responsible, it has been the policy of the National Production Authority to consider first the direct defense needs of the military and the requirements for public health and safety.

"The Scientific and Technical Equipment Division has so far been able to allocate sufficient materials to the producers of physical therapy equipment to meet all essential demands. It is true that some difficulty has been experienced by producers of this equipment in actually obtaining materials and components but, to the best of our knowledge, this difficulty does not stem from any restrictions placed upon the producers by NPA orders or regulations. In many cases the producers of this type of equipment use components which are required for munitions and these components are consequently not as readily available as they would be in normal times. Whenever it is necessary, the National Production Authority, either in Washington or through its various field offices, stands ready to assist producers of essential equipment if a real hardship exists. You will understand, of course, that we should avoid committing quantities of materials to the production of physical therapy equipment beyond those quantities actually needed or beyond which the industry does not have the capacity to consume. In judging individual applications for material allotments, a moderate curtailment of the actual amounts requested may result from an analysis of the application. To the best of our knowledge, however, allocations currently being made to the industry have proved, in all cases, to be adequate.

"If it should come to the attention of your Council that the medical profession at any time experiences a hardship resulting from an inadequate supply of professional equipment, we would sincerely appreciate having you bring it to our attention."

*The Council on Physical Medicine and Rehabilitation has authorized publication of the following reports.*

RALPH E. DE FOREST, M.D., *Secretary.*

## AUREX HEARING AIDS, MODELS L AND M, ACCEPTED

Manufacturer: Aurex Corporation, 1117 N. Franklin St., Chicago 10.

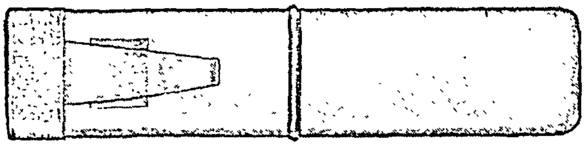
The Aurex Hearing Aids, Models L and M, are electrical instruments housed in a plastic case. Excluding the clothing clips, they measure 68 by 60 by 20 mm. Model L requires a B-battery at 30 volts (i. e., two 15-volt cells in series) and weighs 115 gm. with batteries. Model M is designed for a B-battery at 15 volts, and weighs 109 gm. with batteries. Compensatory adjustments are accessible to the technician which, combined with variety of receivers with different response characteristics, permit adjustment to various types of hearing deficiencies. There is no tone control.

Tests in a laboratory acceptable to the Council showed that these two instruments satisfied the minimum requirements of the Council for acceptance of hearing aids. The Council on Physical Medicine and Rehabilitation voted to include the Aurex Hearing Aids, Models L and M, in its list of accepted devices.

## DAHLBERG JUNIOR HEARING AID, MODEL D-2, ACCEPTED

Manufacturer: The Dahlberg Company, 2730 W. Lake St., Minneapolis 16.

The Dahlberg Junior Hearing Aid, Model D-2, is an electrical instrument housed in a metal case with the microphone opening in a plastic top grille. It has an air conduction receiver with plastic-coated cord. The batteries are housed in the base under a slip cover. The over-all dimensions are 108 by 26 by 25 mm., and the weight, with batteries, is 86 gm.



Dahlberg Junior Hearing Aid, Model D-2

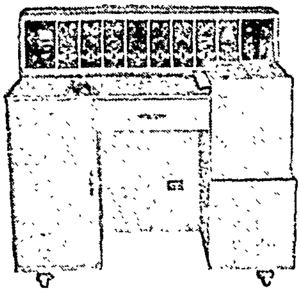
Tests in a laboratory acceptable to the Council showed that this instrument satisfied the minimum requirements of the Council for acceptance of hearing aids. The Council on Physical Medicine and Rehabilitation voted to include the Dahlberg Junior Hearing Aid, Model D-2, in its list of accepted devices.

## EDIN ELECTROENCEPHALOGRAPH, MODEL 400 A SERIES, ACCEPTED

Manufacturer: Edin Company, Inc., 207 Main St., Worcester 8, Mass.

The Edin Electroencephalographs are devices for making direct tracings in ink of the potentials associated with cerebral activity. Model 408 A is an 8-channel instrument in the form of a metal console on casters, shaped very much like a writing desk. The 6-channel and 4-channel instruments are respectively designated 406 A and 404 A. For operation, a source of 115-volt 60-cycle aternating current is needed, and the power consumption is 900 watts.

The following data relate to the 8-channel instrument: Unpacked, the weight is 181 kg. (400 lb.) and the dimensions 104 (height) by 122 by 68 cm. (41 by 48 by 27 in.). Crated, the shipping weight is 295 kg. (650 lb.) and the dimensions 127 by 152 by 86 cm. (50 by 60 by 34 in.). The shipping weight includes 6 packs of recording paper, one 8-ounce bottle of purple ink, 1 bottle of ink remover, 1 spare pen 10 cm. (4 in.) long, and a set of the Allen wrenches required for adjustments.



Edin Electroencephalograph Model 400 A Series

Physical and clinical tests in laboratories acceptable to the Council gave evidence that this instrument satisfied the published minimum requirements of the Council for acceptable electroencephalographs.

The Council on Physical Medicine and Rehabilitation voted to include the Edin Electroencephalograph, Model 400 A Series, in its list of accepted devices.

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## THE CHICAGO MEETING

Next week's issue of THE JOURNAL (April 12) will be the Convention Number. It will contain information on the scientific program, organizational activities, and exhibits. With each passing year this issue becomes larger, which seems entirely proper as the activities of the Association at the annual meeting are increasing in scope and appeal. Thousands of physicians have already decided to attend the 1952 annual meeting of the American Medical Association in Chicago. Others who have not yet made plans for the coming meeting are advised to make application now for hotel accommodations (for which see advertising pages 24 and 25). Attendance at the Chicago Session will be a satisfying experience for those who want to obtain scientific information from lectures, demonstrations, films, television, and exhibits; who want to renew old acquaintances; and who want to join in the social activities possible at an A. M. A. meeting in a city like Chicago.

## ANIMALS FOR RESEARCH

The medical profession and others interested in research must constantly be on the alert to prevent the comparatively small but vocal group of men and women who would prevent by legislation research on animals in this country. This group pleads for the welfare of dogs, but it is obvious that, if dogs were excluded from research laboratories, it would not be long before the plea was taken up for cats, guinea pigs, or parrots, in fact, any form of animal life that the group could use for publicity purposes. Fortunately, newspapers throughout the country often spring to the defense of researchers, so that the public may be properly informed on this important subject. One of the best recent editorials appeared in the March 4 edition of the *New York Times*, entitled "Instead of Animals—What?" It reads as follows:

> The Metcalf-Hatch bill, which was framed with the intention of turning over to research laboratories impounded domestic animals that would ordinarily be killed, aroused the expected opposition of anti-vivisectionists. Bitter as this opposition was, it was redeemed by the more sensible attitude adopted by humane societies organized for the prevention of cruelty to animals. The societies found themselves in the anomalous position of demanding the death of impounded animals rather than permit scientific experimenters to prevail. Now it is realized that no matter what happens in the pounds the work of seeing that stray dogs are dealt with humanely should go on.
>
> Far more important than the fate of a dog in a pound is human health and life. At this late day it should no longer be necessary to emphasize the enormous and rapid progress that medicine has made in the last fifty years because it has been possible to test new therapeutic measures as well as vitamins, hormones and new drugs on animals. What substitute is there for animal experimentation if medical progress is not to be retarded, even halted?
>
> A dog may be man's best friend in the animal world, but there
> is not a religion in the world, not a system of morality, not
> code of medical ethics that does not put the most unworth
> human being above any dog. The antivivisection cause wou
> gain more adherents than it has if its champions would co
> forth with practical suggestions which would enable biologi
> and medical men to discover a cure for cancer, for paralysis
> all its forms and for a hundred other baffling diseases with
> experimenting on animals.

The Hatch-Metcalf Bill, which was introduced in
York State, obviously is of great interest to the mec
profession and all who are interested in research in
state. It has passed both legislative houses in New
State and has been signed by the Governor. What it
effect on animal research will be remains to be seen
the *New York Times* is to be commended for its pra
presentation of the issue.

## ADRENOCORTICOTROPIC ACTIVITY OF PLACENTAL EXTRACTS

Among the factors that tend to restrict the use o
cotropin are the limited supply of the hormone a
occasional development of foreign protein allerg
tions. Recent reports that human placental extra
urine from pregnant women have considerable
corticotropic activity may therefore prove of p
interest.

Jailer and Knowlton,[1] in 1950, employing the
ascorbic acid depletion test in newborn and hyp
tomized rats, found that acetone-dried placenta
from a patient with Addison's disease showed
able corticotropic activity, which was still pres
the extracts were boiled, a procedure known t
gonadotropic and posterior pituitary hormone
tino [2] prepared extracts from both human an
placentas that decreased both the adrenal asc
and circulating eosinophils in hypophysectom
The active principle resembled pituitary cortic
being thermostable, dialyzable, and sensitive to
hyde. Studies with bovine placenta showed th
corticotropic activity to be present in the chori
in the decidua, lending support to the ide
placenta elaborated, and did not merely store,
substance.

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[1] Jailer, J. W., and Knowlton, A. I.: Simulated Adreno-Cortical Activity During Pregnancy in an Addisonian Patient, J. Clin. Investigation **29**: 1430, 1950.

[2] Tarantino, C.: Sulla presenza di ACTH nella placenta, Folia endocrinol. **4**: 197, 1951.

Opsahl, Long, and Fry[3] noted that both chorionic gonadotropin and heat-inactivated chorionic gonadotropin prepared from the urine of pregnant women inhibited the dermal spreading of India ink with hyaluronidase, an effect provoked apparently only by corticotropin or by the 11-oxygenated adrenal cortical steroids. Both preparations were active in hypophysectomized and castrated animals but completely ineffective in animals subjected to adrenalectomy, thus ruling out the possibility that the effect was mediated either through the ovaries or by an adrenal steroid-like substance. Subsequently, Opsahl and Long[4] prepared human placenta extracts with a hyaluronidase inhibiting effect in normal and hypophysectomized animals but not in animals subjected to adrenalectomy or to both hypophysectomy and adrenalectomy. There was, however, no inhibiting effect with extracts of beef muscle or with serum albumin. The placental extracts also caused a decrease in adrenal ascorbic acid and a fall in eosinophils in hypophysectomized rats and mice. When fresh placental tissue was extracted, fractions with corticotropin activity comparable to that of standardized commercial anterior pituitary corticotropic preparations could be obtained. Frozen and stored placental tissues yielded considerably less potent extracts.

These reports may offer an explanation both for the reported beneficial results from the use of postpartum plasma[5] and placental extracts[6] in rheumatoid arthritis and for the observed effects of pregnancy in certain of the so-called collagen diseases. In addition, they represent a noteworthy contribution to our understanding of the placenta as an organ of internal secretion.

## RELATION OF VITAMIN D MILK TO INCIDENCE OF RICKETS

To those who remember the high incidence of rickets in the early twenties and before, the present situation in which there is almost complete absence of rickets in the United States as a whole is little short of miraculous. In the early twenties the children's wards generally contained many examples of early and advanced rickets. Then, it was easy to demonstrate a variety of early rachitic deformities in almost any children's ward; now, at many medical schools it is difficult to find babies with rickets or rachitic deformities to use as examples in teaching. To what factors may this great decrease in the incidence of rickets be attributed?

In those days and certainly by the early thirties the use of vitamin D preparations such as cod liver oil was widely recommended in this country, but in spite of this fact THE JOURNAL in 1933 said: "Whatever the explanation may be, the fact remains that the incidence of rickets is still too great and will continue to be until some cheap, generally available, agreeable source of vitamin D is provided. Vitamin D milk seems to offer promising possibilities of meeting these requirements."[1]

It was at about this time that the Council on Foods and Nutrition of the A. M. A. initiated its program of encouraging production of vitamin D milk. Other groups interested in public health and the state of national nutrition, both private and governmental agencies, joined with industry in this movement. The practice of fortifying milk with vitamin D has expanded steadily since that time.

In the fourth edition of "Infant Nutrition,"[2] published in 1947, about 14 years after the introduction of vitamin D milk, Dr. P. C. Jeans wrote, "Rickets still is found with some frequency in some of our larger cities, especially among the dark skinned races, but it has almost disappeared in the country as a whole. At many medical schools the finding of babies with rickets to use as examples in teaching has become difficult." Dr. Jeans then compared current conditions with an estimate made in New York City early in the 1930's, at which time approximately 15% of babies chosen at random from a low economic level had rickets of a clinically significant degree.

Today a high proportion of bottled milk and practically all evaporated milk is fortified to the recommended level of 400 units of vitamin D to the quart or reconstituted quart, which is sufficient in the customary amounts fed to infants to prevent rickets and to satisfy the needs of growth.

Growing children need vitamin D as much as do infants, and in similar amounts. As the child grows beyond the close watch of the physician, the importance in his nutrition of an automatic source of vitamin D ingested regularly with the food is great indeed. While it must be realized that these facts do not prove that vitamin D milk has been the cause of bringing rickets almost to the vanishing point, it is believed that the broad background of this development justifies the assumption that vitamin D milk has been an effective public health measure. The cooperation of the milk industry as a whole is deserving of high praise.

The seal of the Council on Foods and Nutrition appearing on a bottle of milk or a can of evaporated milk implies far more than certification of truthful labeling or of the stated vitamin D content of the product; it implies, in addition, approval of a voluntary cooperative project by industry and organized medicine that was the first venture in this country into the area of fortification of a major article of food. Vitamin D milk was not intended as an adjunct to the practice of medicine. It should be regarded by the physician as a public health measure that has been a factor in eliminating a dietary deficiency disease on a communal scale.

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[3] Opsahl, J. C.; Long, C. N. H., and Fry, E. G.: Chorionic Gonadotrophin, ACTH, and the Adrenal-Hyaluronidase Relationship, Yale J. Biol. & Med. **23**: 399, 1951.

[4] Opsahl, J. C., and Long, C. N. H.: Identification of ACTH in Human Placental Tissue, Yale J. Biol. & Med. **24**: 199, 1951.

[5] Granirer, L. W.: Clinical Response of Rheumatoid Arthritis to Postpartum Plasma: A Two Year Study, J. A. M. A. **146**: 995 (July 14) 1951.

[6] Dillon, R. N., and Majnarich, J. J.: Placental Extract in Treatment of Rheumatoid Arthritis, Northwest Med. **50**: 677, 1951.

[1] The Mineralization and Vitaminization of Milk, editorial, J. A. M. A. **101**: 1728 (Nov. 25) 1933.

[2] Jeans, P. C., and Marriott, W. M.: Infant Nutrition: A Textbook of Infant Feeding for Students and Practitioners of Medicine, St. Louis, C. V. Mosby Co., 1947, p. 416.

# ORGANIZATION SECTION

## FEDERAL MEDICAL LEGISLATION

### Indian Health Service

Representative Judd of Minnesota introduced H. R. 6908, which proposes to transfer the administration of health services for Indians and the operation of Indian hospitals from the Department of the Interior to the United States Public Health Service. This bill is identical with S. 2780, previously reported.

### Industrial Safety

H. R. 6920 was introduced by Representative Bailey of West Virginia. This bill would provide for federal assistance to state agencies administering labor laws in their efforts to promote, establish, and maintain safe work places and practices in industries, thereby reducing human suffering and financial loss and increasing production through safeguarding available manpower. There is an identical bill, S. 2714, in the Senate.

### Veterans Presumption of Service Connection Benefits

Representative Adair of Indiana introduced H. R. 7022, which would amend Veterans Administration regulations to establish for persons who served in the armed forces during wartime a further presumption of service connection for nonpulmonary tuberculosis. The present regulations establish only a one year presumption of service connection for nonpulmonary tuberculosis for World War II veterans. This bill was introduced at the request of the Veterans of Foreign Wars.

Another bill, H. R. 7031, introduced by Representative Price of Illinois, would amend the Veterans Administration regulations to establish a conclusive presumption of service connection for poliomyelitis becoming manifest within one year after separation from active wartime service, or service after June 26, 1950.

### Income Tax Deduction for Medical Expense

Representative Morano of Connecticut introduced H. R. 7042 posing to amend section 23 (X) of the Internal Revenue Code increase the maximum allowable deduction for medical expenses. The bill seeks to amend the present law permitting deduction from income subject to taxation by increasing the maximum allowable deductions from $1,250 per person to $1,875, and increasing the maximum in a joint return of husband and wife to $7,500. Deductions are presently applicable for that portion of medical expense that exceeds 5% of gross income.

## STATE MEDICAL LEGISLATION

### Arizona

**Bills Enacted.**—H. 2, has become Ch. 39 of the Laws of 1952. It provides for the creation of an Arizona **state board of nurse registration** and nursing education for the licensing and regulating of professional and practical nurses. H. 10, has become Ch. 36 of the laws of 1952. It provides for the creation of a **board of physical therapy examiners** and defines physical therapy as the treatment of a bodily or mental condition by the use of the physical, chemical or other properties of heat, light, water, or electricity or by massage and active and passive exercise prescribed by a licensed physician but does not include the use of roentgen rays and radium for diagnostic and therapeutic purposes or the use of electricity for surgical purposes, including cauterization. H. 39, has become Ch. 56 of the Laws of 1952. It creates a **division of vocational rehabilitation** in the state board of vocational education which shall provide vocational rehabilitation services to disabled persons. Physical rehabilitation is defined to include physical restoration which means medical, surgical, or therapeutic treatment necessary to correct or reduce the employment handicap of a disabled person and includes medical, psychiatric, dental, and surgical treatment, nursing service, hospital care not to exceed 90 days, convalescent home care, drugs, medical and surgical supplies, and prosthetic appliances. H. 76, has become Ch. 27 of the Laws of 1952. It amends the law relating to vital statistics by requiring persons having knowledge of the **death of a human being** in cases in which no physician was in attendance to notify the nearest police officer who shall **report the fact to the *coroner*.** Where necessary the coroner may direct a medical examiner or other qualified physician to make such examination of the body as may seem necessary to determine the cause of death and to report the same to the coroner and the county attorney.

### Kentucky

***Bill Introduced.***—S. 264, to amend the law relating to certification of births, proposes to require the **attending physician** or midwife to sign and **file a certificate of birth** with the local registrar of the district in which the birth occurred within 10 days after date thereof.

**Bills Enacted.**—H. 137, was approved March 12, 1952. It is a new ***medical practice act*** which is applicable to physicians and osteopaths Under this act, physicians and osteopaths are licensed on the same basis H. 280, was approved March 12, 1952. It provides, among other things that no person shall, in connection with the practice of medicine, surgery osteopathy, optometry, dentistry, chiropody, pharmacy, chiropractic, psychology or psychiatry, nursing, anesthesiology, physiotherapy or physica therapy, or any other profession or business having for its purpose th diagnosis, treatment, correction, or care of any human ailment, conditio disease, injury, or infirmity, hold himself out as a doctor or **employ or us in any manner the *title doctor or "Dr."*** unless he actually has graduate and holds a doctor's degree from a school, college, or university or institution authorized by its governing body to confer such degree. Such perso using such degree, furthermore, must affix suitable words or leters t statements, cards, prescriptions, and so forth, designating the particul doctor's degree which he holds.

### Maryland

***Bill Enacted.***—H. R. 35, was adopted March 3, 1952. It resolves th the Board of Regents of the University of Maryland be requested study the possibility of providing a system of ***rotating interns and nurs*** so that competent nurses and interns who have gained valuable experien in the University hospital might spend some time in county hospitals.

### Massachusetts

**Bills Introduced.**—S. 539, proposes the creation of a special commissi to make an investigation and study of the conduct of the **department mental health.** H. 2196, proposes to order the committee on public heal to make an investigation and study relative to the **compulsory hos *talization of certain persons suffering*** from communicable tuberculo and relative to the practice of **corrective therapy** by licensed correcti therapists.

**Bill Enacted.**—H. 83, has become Ch. 89 of the Laws of 1952. authorizes the board of health, by regulation, **to prohibit school childr from attending public schools** if they are infected with a disease dangero to the public health or live in a household where such an infection exposure exists.

### Michigan

**Bill Introduced.**—S. 328, proposes to give **medical service corporatio** to pay to the state commissioner of insurance a fee equal to 1 ce for each person covered by a contract issued by the corporation duri the prior year and to authorize the commissioner to revoke the licen of any medical care corporation or hospital care corporation which fa to pay such annual fee.

### Rhode Island

**Bills Introduced.**—H. 832, is a general amendment to the workme compensation act which provides, among other things, that an inju employee **may select to treat him any physician** or dentist authorized the medical director. H. 853, to amend the **basic science act,** propos to admit to examination a person who in 1940 was pursuing a course study in an approved professional but who had not previously complet one year of professional collegiate education and training, and who w a resident of Rhode Island for the last five years and at present is resident of Rhode Island.

## A. M. A. TRANSCRIPTIONS

The recently completed electrical transcription series, "Inte lude," has been requested by the International Broadcasting D vision of the U. S. Department of State for its radio transcripti library used in overseas broadcasting on the Voice of Americ A set of recordings has been forwarded to the Internation Broadcasting Division of the State Department, New York Cit

This series of transcriptions has just been released to coun medical societies by the Bureau of Health Education. It co sists of 13 programs, each setting forth the life and the mus of a great composer plus medical facts relating to his princip health problem or the cause of his death viewed in the light modern medicine.

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The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

# MEDICAL NEWS

## CALIFORNIA

**Honor Drs. Meyer and Geiger.**—The dinner meeting of the San Francisco Medical Society March 12 was in honor of Karl F. Meyer, Ph.D., director of the Hooper Foundation for Medical Research at the University of California, and Dr. Jacob C. Geiger, retiring director of public health of the City of San Francisco. They have been elected honorary members of the Society. Dr. Meyer addressed the group on "The Rise of Preventive Medicine."

**Society News.**—The Metropolitan Dermatological Society of Los Angeles has elected the following officers for 1952: Dr. Harold C. Fishman, Beverly Hills, president; Dr. Stanton B. May, Glendale, vice-president, and Dr. Fred Feldman, Los Angeles, secretary.——Dr. Charles F. Nelson of Beverly Hills has been elected president of the Los Angeles Academy of General Practice for 1952.

**State Medical Meeting in Los Angeles.**—The annual meeting of the California Medical Association will be held at the Biltmore Hotel, Los Angeles, April 27-30 under the presidency of Dr. H. Gordon MacLean, Oakland. Guest speakers at the general meetings include:

Charles L. Brown, Philadelphia, Changing Concepts in Medical Treatment.
William S. McCann, Rochester, N. Y., The Meaning of Disease.
Lester R. Dragstedt, Chicago, Physiology of Gastric Secretion and the Ulcer Problem.
Haven Emerson, New York, Medical Care and Public Health Service.
Eugene P. Pendergrass, Philadelphia, Role of the Radiologist in Diagnosis of Chest Lesions.

There will be 15 section meetings. The section speakers from out of the state will be Dr. James W. Kernohan, Rochester, Minn., professor of pathology, Mayo Clinic; Dr. Edith L. Potter, Chicago, associate professor of pathology, department of obstetrics and gynecology, University of Chicago, The School of Medicine, and Dr. Willis J. Potts, Chicago, associate professor of surgery, Northwestern University Medical School. Surgical films will be shown throughout the entire meeting, and there will be scientific and technical exhibits. The association's cancer commission will hold preconvention conferences April 26 in pathology and radiology at the Biltmore Hotel and the auditorium of the Los Angeles County Medical Association. The woman's auxiliary will meet April 27-29 at the hotel. The annual golf tournament will be at the Wilshire Country Club the afternoon of April 29.

## DISTRICT OF COLUMBIA

**Personal.**—Dr. Walter A. Bloedorn, dean of George Washington University School of Medicine, has been named to a three-year term as a member of the advisory committee on medicine and public health of the W. K. Kellogg Foundation.

**Regulation of BB Guns.**—The District Society for the Prevention of Blindness is about to launch a program aimed at reducing injuries to children's eyes by BB gun pellets. There have been nine such accidents in the district since Christmas. The society wants laws prohibiting sale of BB guns to children under 18 in all parts of the metropolitan area, as well as the added provisions requiring adult supervision and financial responsibilty.

**Research on Drugs.**—Dr. John P. McGovern, assistant professor of pediatrics at George Washington University School of Medicine, has received $8,000 in grants for research in the use of new drugs in the treatment of infants and children. White Laboratories has granted $4,500 for an evaluation of molybdenum in iron compounds to determine its effectiveness in the treatment of iron deficiency anemias in infants and children. A grant of $3,500 has been received from Charles Pfizer and Co., Inc., for studies of growth promoting factors in antibiotics in premature infants and antibiotic therapy in whooping cough. Dr. McGovern joined the university staff in 1950, as a Markle Foundation Scholar in Medical Science. He received the $500 Borden Award in 1945 for research in whooping cough.

## GEORGIA

**University Appointment.**—Dr. A. Calhoun Witham, formerly of Chamblee, who recently returned from studies at the University of London, has joined the staff of the Medical College of Georgia, Augusta, as assistant professor of physiology.

**Barnesville Health Center.**—This health center and maternity shelter in Barnesville was opened Dec. 16 as a project of Lamar and two adjoining counties. It provides health facilities and medical care for a region unable to support a large hospital. Twelve beds are available for obstetric patients, who may be private patients and pay a nominal fee, or charity patients referred by the Lamar County Welfare Department. Accident cases may be admitted for temporary treatment before transfer. There are no facilities for major surgical procedures. The building also houses offices of the public health departments of three counties, making it a center of health activities in the community including pre- and postnatal clinics, dental care, sanitation, and diet control.

## ILLINOIS

**Tuberculosis Association Meeting.**—The annual meeting of the Illinois Tuberculosis Association will be held April 21-22 at the Pere Marquette Hotel, Peoria, under the presidency of Dr. Kenneth G. Bulley, Aurora. The meetings will cover tuberculosis nursing, rehabilitation, health education, mass x-ray surveys, routine hospital admissions, and medical aspects of tuberculosis control. On April 22 Dr. Warren W. Furey, assistant clinical professor of roentgenology at Stritch School of Medicine of Loyola University, Chicago, will speak on "X-Raying Hospital Admissions from the Roentgenologist's Viewpoint." Dr. David T. Carr of the Mayo Clinic, Rochester, Minn., will speak on "Present Status of Antibacterial Therapy of Tuberculosis," and Dr. Edgar M. Medlar of Hermann Biggs Memorial Hospital, Ithaca, N. Y., will discuss "Snipping Operation in the Treatment of Pulmonary Tuberculosis."

**Mental Health Week.**—The fourth annual observance of Mental Health Week in Illinois will be held May 4-10 with a program built around the theme, "Help Yourself to Mental Health." Sponsored by the Illinois Department of Public Welfare with the cooperation of social and civic organizations, the Mental Health Week program stresses both individual and community action through education in mental health. It is a part of a nation-wide observance. The emphasis in Mental Health Week this year will be in two areas: (1) helping well people stay well, and (2) spreading the word on how communities may organize to provide themselves with mental health facilities. At the annual governor's luncheon in Springfield May 7, Governor Stevenson will present awards to outstanding employees of state mental hospitals. Open house will be held in each of the 12 state hospitals on Sunday, May 4. Numerous public and private clinics will also hold open house during the week.

Mental Health Week activities will be in the forefront at the Mental Health Conference and dinner in Peoria April 14, when the Peoria Mental Hygiene Society will be host to the Illinois society and the three affiliate groups. A panel discussion on the volunteer services program in Illinois is scheduled. Presentation of awards for the three best essays by student teachers on the "Significance of Mental Health for the Teacher" will be made May 12 at the Illinois Society for Mental Health meeting. The awards were established by Ronald P. Boardman, president of the society. First prize is $100; second and third prizes are $50 each. Educational activities include distribution of litera-

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

ture, special programs in schools and by civic organizations, radio and television programs, and displays of posters. Information may be obtained by writing to Mental Health, Room 300, 123 W. Madison St., Chicago 2.

### Chicago

**Neuropharmacologic Seminars.**—Bruno Minz, of the laboratory of general physiology at the Sorbonne, Paris, is spending six months as visiting research professor of pharmacology at the University of Illinois College of Medicine. Dr. Minz is giving a series of seminars to graduate students. He is engaged in neuropharmacological studies on the transmission of impulses in the central nervous system and on the influence of hormones on convulsive thresholds.

**Tumor Institute to Have Radioactive Cobalt.**—The Chicago Tumor Institute is to receive a supply of cobalt 60, radioactive cobalt, from the Oak Ridge (Tenn.) laboratory as soon as a new $150,000 building is erected by the institute to house it. Dr. Max Cutler, director of the institute, said it is expected the first patient will be treated with the cobalt next fall. The metal, about the size of a lump of sugar, will be shipped in a lead container weighing about 3,000 lb. to protect against dangerous rays. The so-called cobalt bomb is said to be equivalent in radiation to 500 gm. of radium.

**Lectures on Heart and Circulation.**—The Chicago Medical School is presenting a lecture series on the heart and circulation in Amphitheatre A, Wednesdays at 12:30 p. m. as follows:

April 9, Louis N. Katz, Michael Reese Hospital, Recent Trends in Electrocardiography.
April 16, Aldo A. Luisada, Chicago Medical School, Auscultation and Phonocardiography.
April 30, Jeremiah Stamler, Michael Reese Hospital, Atherosclerosis and Arteriosclerosis.
May 7, Carl J. Wiggers, Cleveland, Physiological Reactions Following Coronary Occlusion.
May 14, Donald H. Atlas, Chicago Medical School, The Controversy of Congestive Failure.
May 21, Willis J. Potts, Children's Memorial Hospital, Surgery of Congenital Heart Disease.

## INDIANA

**Clinics for Practitioners.**—The St. Joseph Hospital Postgraduate Amphitheatre was opened at the hospital in Fort Wayne last September to provide easily available clinics for the practitioners there and in the surrounding area. A four hour clinic is held once a month. Thus far clinics have been directed by Dr. Laurence Miscall of Cornell University, New York; Drs. William L. Martin and Frank Tropea Jr. of Hahnemann Medical College, Philadelphia; Dr. Robert M. Zollinger of Ohio State University, Columbus; Dr. William J. Baker of Northwestern University, Chicago; Dr. Russell H. Morgan of Johns Hopkins, Baltimore, and Drs. Paul H. Holinger and John T. Reynolds of the University of Illinois, Chicago. These have been supplemented with clinics by staff members of St. Joseph Hospital.

## IOWA

**New Department Heads at Iowa State.**—Four new department heads will assume their duties this spring in the State University of Iowa College of Medicine, Iowa City. Henry B. Bull, Ph.D., currently professor of chemistry at Northwestern University Medical School, Chicago, will succeed Henry A. Mattill, Ph.D., as professor and head of biochemistry, effective July 1. Professor Mattill, who reaches retirement age this year, came to the university as professor and head of biochemistry in 1927. In 1950 he was given the Iowa award of the American Chemical Society for his contributions to teaching and research.

Dr. John H. Randall, who succeeds Dr. Everett D. Plass as head of obstetrics and gynecology, has been at the university since he received his doctor of medicine degree at Iowa in 1928, except for a year's postgraduate work in Vienna in 1930. Dr. Plass was given the top annual award of the Iowa division of the American Cancer Society last year for his outstanding work in cancer control.

Dr. Charles Davidson May, Minneapolis, has been named professor and head of pediatrics effective July 1, succeeding Dr. Philip C. Jeans, who will retire to part-time service June 30. Currently an associate professor of pediatrics, Dr. May joined the University of Minnesota in 1947. Dr. Jeans has headed the department of pediatrics since coming to Iowa in 1924 from Washington University School of Medicine in St. Louis.

Dr. Franklin H. Top, professor of epidemiology at the University of Minnesota, Minneapolis, has been named professor and head of the department of hygiene and preventive medicine. He replaces Dr. Milford E. Barnes, professor and head of the department of hygiene and preventive medicine since 1930.

Dr. Ira H. Pierce, professor of pharmacology and a member of the staff of the college of medicine since 1925, will retire to part-time service on July 1.

## KANSAS

**The Clendening Lectures.**—These lectures of the University of Kansas will be given on May 1 in Lawrence and on May 2 in Kansas City by George Sarton, Sc.D., Cambridge, Mass. The title of the first lecture will be "The Alexandrian Renaissance (Third Century B. C.)" and the second lecture "Galen, Physician and Philosopher (Second Half of Second Century)."

**Indigent Health Care Survey.**—The Kansas Medical Society recently conducted a survey on indigent health care costs. Over period of six months some 30 county societies cooperated t supply financial data. The survey provided a better knowledge o the indigent care program than was available before, illustrate wide variations in cost and in service, and pointed toward th need of a more complete study. When representatives of th state medical society and the state hospital and pharmaceutic associations met with the board of social welfare Jan. 25, it wa decided that a complete and total study would be made indigent health care costs.

## KENTUCKY

**Public Health Association Meeting.**—The fourth annual co vention of the Kentucky Public Health Association is schedul April 9-11 at the Henry Clay Hotel in Louisville. Speakers w be Dr. Francis J. Weber, medical director, region 4, U. S. Pu lic Health Service, Cleveland; Dr. W. Clark Bailey, preside Kentucky State Medical Association, Harlan; Ruth Puffer, rector, division of vital statistics, Tennessee State Departme of Health, Nashville; John W. Knutson, D.D.S., chairma division of dental public health, U. S. Public Health Servi Washington, D. C., and P. C. Sanders, Boyle County Hea Officer. Other features will be panels on "Planning a Scho Health Program," "Preventive Medicine," "Gaining Commun Support," and "Sanitation."

**Trust Fund to Aid Crippled Children.**—A $100,000 trust fu given by Mrs. Mary A. Pirtle, Cleveland, in memory of her hu band, an engineer and native of Glenview, has been set up at t Children's Hospital in Louisville for medical rehabilitation crippled children. The income from this fund will be used to tr patients with two types of abnormalities, congenital heart d ease and harelip and cleft palate, with the aid of two spec medical teams. Patients referred to the teams by private doct throughout the state will be interviewed, and treatment at hospital and later check-ups will follow the diagnosis and det mination of the type of care to be given. Dr. Leonard T. Dav son, medical director of the hospital, will handle cases of co genital heart disease; and a surgeon, a heart specialist, and x-ray specialist will take care of cases of heart abnormality birth. On the speech defect team will be a pediatrician, surge specialist in corrective appliances, psychologist, and speech pert. If the programs are approved by the hospital's board directors, they will be the first of their kind in Kentucky.

## MARYLAND

**Medical and Surgical Symposium.**—This annual symposiu sponsored by the Medical Association of the Lutheran Hospi of Maryland, Baltimore, will be held May 3 at the hospit Dr. George T. Pack of New York will speak on "Extension Radical Surgery in the Treatment of Cancer"; Dr. Theodore Eberhard of Philadelphia, "Radiation Therapy in Cancer"; John Parks of Washington, D. C., "Endocrine Therapy"; a Dr. Garfield G. Duncan of Philadelphia, "Practical Conside tions in the Management of Diabetes." All physicians are vited to attend. A banquet and the Internes' Frolic will foll on Saturday evening at the Sheraton-Belvedere Hotel.

**State Medical Meeting.**—The Medical and Chirurgical Faculty of the State of Maryland will hold its annual meeting at its headquarters in Baltimore in Osler Hall, April 28-30, under the presidency of Dr. Alan M. Chesney, Baltimore. Out-of-state speakers include:

- Sir Allen Daley, London, The Relative Position of the Specialist, the General Practitioner, and the Public Health Officer in Britain.
- Osler A. Abbott, Atlanta, Ga., The John M. T. Finney Fund Lecture, Recent Advances in Surgery of the Autonomic Nervous System.
- Paul B. Magnuson, Chicago, The Ridgeway Trimble Fund Lecture, Too Big a Job for One Year.

A program of motion pictures will precede the scientific session on Tuesday. A discussion, "You and Your AMA," will be presented Tuesday morning by Drs. Ernest B. Howard, Chicago, assistant secretary, and Walter B. Martin, Norfolk, Va., member of the Board of Trustees, American Medical Association, and Dr. George H. Yeager, Baltimore, secretary of the Medical and Chirurgical Faculty.

Dr. Warde B. Allan of Baltimore will be moderator for a panel discussion on "Contraindications to ACTH and Cortisone." On Wednesday afternoon there will be a symposium on the tuberculosis problem in Baltimore with Dr. John B. Barnwell, chief of the tuberculosis division of the Veterans Administration, Washington, D. C., serving as moderator. The Woman's Auxiliary will meet in conjunction with the association.

## MASSACHUSETTS

**General Practice Assembly.**—The Massachusetts Academy of General Practice will hold its spring clinical assembly April 23 in Springfield. The morning session will be held at Springfield Hospital; luncheon and afternoon sessions will be held at the Hotel Kimball. Dr. Stuart W. Cosgriff, New York, will speak on "The Use of Anticoagulants," and Dr. Malvin F. White, Boston, on "Plastic Surgery in the Treatment of Common Disorders in General Practice." The after dinner speaker will be Dr. Jerome L. Leon, administrative medical superintendent of Riverside Hospital in New York. His subject will be "Narcotics and the Adolescent."

## MICHIGAN

**Wayne University and State Plan Cooperative Program.**—The Board of Education of Detroit has approved a declaration of intent between Wayne University and the Michigan Department of Mental Health to carry on a cooperative program of teaching and training in the field of mental health in Detroit. The program is aimed at helping to overcome the shortage of educational and research facilities for psychiatrists and allied personnel in the state. Wayne University will request the city to provide a site for construction of a neuropsychiatric institute in the area adjacent to the college of medicine campus. The institute will remain under the ownership of the state, which will also provide funds for its operation including its instructional and research programs. Wayne University will be responsible for the establishment of a teaching program that is satisfactory to the department and the university.

## MISSOURI

**General Practitioners' Meeting.**—The Missouri Academy of General Practice will hold its fourth annual assembly at the Governor Hotel in Jefferson City, May 7-8. Dr. Carl A. Moyer, St. Louis, will discuss "Clinical Approach to Common Problems of Fluid and Electrolyte Imbalances"; Dr. William B. See, Columbia, "Management of Prolonged Labor"; Dr. Garold V. Stryker, St. Louis, "A Résumé of Common Skin Diseases"; Dr. Stanley F. Hampton, St. Louis, "Extrinsic and Intrinsic Factors in the Diagnosis and Treatment of Allergy"; and Dr. William P. Williamson, Kansas City, Kan., "The Neurological Examination."

**State Board Provides Objective Type of Examination.**—While attending the Federation of State Medical Boards meeting held recently in Chicago, the Missouri State Board of Medical Examiners entered into a contract with the American Public Health Association to furnish an objective type of examination to be given to the doctors who have made application to take the Missouri State Board Examination.

## NEW HAMPSHIRE

**State Heart Association.**—The New Hampshire Heart Association has established headquarters in Concord at 4 Park St. All New Hampshire physicians are invited to become members. Chairman of the professional membership committee is Dr. Philip M. L. Forsberg, Concord, and president of the association is Dr. Charles H. Parsons of Concord. Other officers are Dr. Jan Nyboer, Hanover, vice-president, and Dr. Homer E. Lawrence, Concord, secretary-treasurer.

## NEW JERSEY

**Annual Amputee Conference.**—The Sixth Annual Amputee Conference will be held at the Kessler Institute for Rehabilitation, Pleasant Valley Way, West Orange, May 1-3. The conference will discuss problems of upper and lower extremity amputees, including psychological preparation of the patient, surgery for amputations, aftercare of the stump, prostheses, and training of the amputee. Registration is open to physicians, therapists, nurses, and counselors in the rehabilitation professions. Persons desiring to register should communicate with the institute at the above address. For the first time, the Kessler Institute will issue certificates to all registrants who attend the full three day conference.

## NEW YORK

**Postgraduate Instruction.**—A series of lectures arranged by the Medical Society of the State of New York for the staffs of the Edward J. Barber Hospital of Lyons and the Newark Hospital are being given on Fridays from 11:30 a. m. to 1 p. m. at the Hotel Wayne in Lyons. Remaining lectures are as follows:

- April 11, Diagnosis and Management of the Irritable Bowel, Hans J. Bruns, Syracuse.
- April 18, Diagnosis and Treatment of Common Neurological Disorders, Paul H. Garvey, Rochester.
- April 25, Preventive Orthopedics: Common Defects with Good Prognosis under Medical Care, R. Plato Schwartz, Rochester.

**State University Foundation Grants.**—The Research Foundation of the State University of New York has received the following grants: $7,500 from the Atomic Energy Commission to study methods to alter the postradiation course in rabbits exposed to total body irradiation; $2,500 from Ciba Pharmaceutical Products, Inc., Summit, N. J., to continue research in hormonal factors involved in water excretion; $3,600 from the Sterling-Winthrop Research Institute, Rensselaer, N. Y., as a fellowship fund and research grant in the general field of diuretics and in particular on studies dealing with the mechanism of diuresis. The research is being conducted at the State University of New York College of Medicine at Syracuse.

### New York City

**Eighth Harvey Lecture.**—Walter H. Seegers, Ph.D., professor of physiology, Wayne University College of Medicine, Detroit, will deliver the Eighth Harvey Lecture of the current series at the New York Academy of Medicine April 17 on "Coagulation of the Blood."

**Charter Day Lecture.**—Henry J. Taylor, radio commentator, and member of the Board of Trustees of New York Medical College, Flower and Fifth Avenue Hospitals, will deliver this year's Charter Day Lecture in the college auditorium April 11 at 3 p. m. on "Looking at Home and Abroad."

**Annual Bancroft Lecture.**—The annual Frederic W. Bancroft Lecture in Surgery, sponsored by the Alumni Association of Beth David Hospital, will be given on April 23 by Dr. Henry W. Cave, chief of the first surgical division at Roosevelt Hospital. Dr. Cave will lecture on "Massive Hemorrhage from the Upper Gastrointestinal Tract" at the hospital.

**Personals.**—Drs. Julia M. Jones and William H. Stearns have been appointed to the medical board of Stony Wold Sanatorium, Lake Kushaqua, Franklin County, New York.——Dr. Samuel J. Gelman, deputy medical superintendent of Morrisania City Hospital, has been appointed assistant administrator of the Hospital for Joint Diseases.

## NORTH CAROLINA

**Brodie C. Nalle Lecture.**—The third Brodie C. Nalle Lecture will be presented by the Brodie C. Nalle Fund of the Nalle Clinic Foundation at 8 p. m. April 25 at the Hotel Charlotte in Charlotte. Dr. Richard W. TeLinde, Johns Hopkins University School of Medicine, Baltimore, will speak on "Carcinoma of the Cervix: Recent Advances in Diagnosis and Treatment." Dr. TeLinde is professor of gynecology at Johns Hopkins University.

## PENNSYLVANIA

**Lecture on Physiology of Physical Training.**—Dr. Ernst Jokl of the Union of South Africa, researcher in the physiology of exercise, was the guest speaker Feb. 3 at the fourth scientific meeting of the Valley Forge Heart Institute and Hospital in Fairview Village, an affiliate of the Wolfe Clinic in Philadelphia. Dr. Jokl's topic was "Physiology of the Physical Training with Particular Reference to Increasing Cardiac Reserve."

### Philadelphia

**New Radiobiology Laboratory.**—A new radiobiology laboratory was dedicated at the Temple University School of Medicine on Feb. 1. This laboratory expands the facilities for basic research using radioactive isotopes. Emphasis is placed on research dealing with application of radioactive isotopes in diagnosis and treatment of cancer.

**Fellowship at Jefferson Available.**—The next fellowship in obstetric and gynecologic endocrinology in the Jefferson Medical College of Philadelphia will be available July 1. At least one year of preliminary training in obstetrics and gynecology or in endocrinology is required. Requests for application should be sent promptly to Dr. Lewis C. Scheffey, Director of the Department of Obstetrics and Gynecology, Jefferson Medical College.

**Comroe Lecture on Gout.**—Dr. Alexander B. Gutman, professor of medicine at the Columbia University College of Physicians and Surgeons, New York, delivered the annual Bernard Comroe Memorial Lecture at the Hospital of the University of Pennsylvania March 28 on "Gout, A Derangement of Purine Metabolism." The lecture was sponsored by Kappa Pi Chapter of Phi Delta Epsilon.

## TENNESSEE

**State Medical Meeting in Knoxville.**—The annual meeting of the Tennessee State Medical Association will be held April 7-9 the Andrew Johnson Hotel in Knoxville under the presidency Dr. Ernest G. Kelly, Memphis. Out-of-state and invited eakers include:

Philip K. Bondy, Atlanta, Ga., Office Management of the Diabetic Patient.
Robert C. Pendergrass, Americus, Ga., Value of X-Ray Examinations of the Chest in the Management of Cancer.
Merlin L. Trumbull, Memphis, and Miss E. A. Kelly, Indications for Bone Marrow Examinations.

There will be a symposium on hypertension Tuesday afternoon with Drs. Joseph W. Johnson Jr. and E. White Patton of Chattanooga, James G. Hughes and Harwell Wilson of Memphis, and Thomas F. Frist, Nashville, the participants. Eight physicians from the state will present a symposium on Peripheral Vascular Disease on Wednesday afternoon. Dr. Louis H. Bauer, Hempstead, N. Y., President-Elect of the American Medical Association, will be guest speaker on the President's Night program. Several state specialty groups and other organizations will meet concurrently with the state association. The Woman's Auxiliary will have headquarters at the Farragut Hotel.

## TEXAS

**Coordinate Teaching of Medical Services.**—The University of Texas Medical Branch, Galveston, is planning to coordinate all teaching in the auxiliary medical services, including clinical laboratory technology, radiation technology, physical therapy, occupational therapy, medical record librarianship, social service work, and hospital administration. Courses are being designed for in service training, certification, and degrees. These auxiliary medical service curriculums will be available at the beginning of the fall semester of 1952.

**Large Bequest to Baylor.**—New income of about $200,000 a year will be received by Baylor University College of Medicine, Houston, under terms of a settlement of the contested will of the late Mrs. Helene Crosby Simmons. This bequest gives Baylor half interest in oil producing properties in Texas and Louisiana. Student loan funds and other benefits possible under the terms of Mrs. Simmons' will will be developed by the board of trustees and faculty of Baylor when the property, estimated at more than a million dollars in value, is transferred by the court.

## WEST VIRGINIA

**Personals.**—Dr. Edwin A. Zepp, Martinsburg, is one of thre young men who received the West Virginia Junior Chamber o Commerce distinguished service award for 1951.

**Summer Camp for Diabetic Children.**—The West Virginia Di betes Association will again sponsor a summer camp for diabeti children from May 30 to June 7. The offer of Carbide and Ca bon Chemicals Corporation to use its Camp Camelot has bee accepted. It is located about 45 miles from Charleston. Camp ers will meet in Charleston on May 30, and transportation wi be provided to and from the camp. There is no charge for e rollment. The camp is supported by donations from organiz tions, groups, and individuals. Medical care will be provid by four doctors, four nurses, and other counsellors and perso nel in attendance. The camp will be known as Camp Kno-Kom Dr. George P. Heffner, Charleston, representing the West V ginia Diabetes Association, has requested that doctors who a treating diabetic children between the ages of 8 and 16 yea and who would like for them to attend the camp, write to Can Kno-Koma, 1115 Quarrier St., Charleston. Voluntary contrib tions for the upkeep of the camp should be mailed to the sa address.

**Press-Radio Conference.**—The third Annual Press-Radio Co ference, sponsored by the West Virginia State Medical Assoc tion, will be held in Charleston April 6 under the auspices of public relations committee, of which Dr. John F. McCusk Clarksburg, and Dr. Paul L. McCuskey, Parkersburg, are chairmen. A summary report of a questionnaire relating to me cal services mailed to newspaper editors in West Virginia will presented at the opening of the conference. Representatives newspapers, radio broadcasting stations, and the medical p fession will participate in a forum that will follow. There be a social hour at 5:15 p. m., and the annual dinner at 6 p. with the West Virginia State Medical Association as the h Robert M. Hurley, Chicago, Midwest bureau chief of the Mut Broadcasting System, will be the guest speaker. The confere will follow the annual Secretaries-PR Conference, which will held in the morning beginning at 9:30. The following progr will be presented:

John H. Gile, Parkersburg, A Telephone Courtesy Program.
Jacob C. Huffman, Buckhannon, The American Medical Educa Foundation Program.
John T. Jarrett, Charleston, A Successful Emergency Call System.

The meeting will close with a roundtable discussion of mut interest to officials of the state medical association and secreta and treasurers of component societies. The second half of morning program will be devoted to public relations activit Dr. John F. McCuskey will also present a summary of a sur on medical care recently conducted in the state. At lunch, Fl D. Dean, Parkersburg, works manager of the E. I. du Pont Nemours and Company plant in that city, will speak on " Shortage is Critical."

## VERMONT

**Fraternity Lectures on Blood Diseases.**—Dr. William Da shek, professor of clinical medicine at Tufts College Med School, Boston, will deliver the annual Phi Delta Epsilon Lect at the College of Medicine, University of Vermont, Burling on April 10. The lecture will be sponsored by the Beta Lam Chapter. Dr. Dameshek will speak to the entire student bod the College of Medicine in hall A of the medical buildin 1:15 p. m. on "The Purpuras" and will deliver his main add at the auditorium of the Fleming Museum on "Hemol Anaemia" at 8:15 p. m.

## GENERAL

**Meeting on Applied Nutrition.**—The American Academy of Applied Nutrition will hold its annual meeting at the Del Mar Hotel in Del Mar, Calif., April 25-27. Research in their respective fields will be presented Friday by M. S. Dunn, Ph.D., Los Angeles, chemistry; W. W. Wainwright, D.D.S., Chicago, radiology; Dr. W. Edward Chamberlain, Philadelphia, radiology; and Dr. Arthur E. Gladman, Oakland, Calif., psychoanalysis. The program will close Sunday with a forum on "What Is Fact and What Is Fad in Nutrition."

**Council of New England State Medical Societies.**—The seventh annual meeting of this council will be held at the Sheraton-Plaza Hotel in Boston April 16 under the presidency of Dr. Joseph H. Howard, Bridgeport, Conn. The business meeting will include a report of the Lincoln Foundation in Medford by Dr. John F. Conlin of the Massachusetts Medical Society. The after dinner speaker will be Dr. John P. Bowler, Hanover, N. H., who will speak on "The Employment of Physicians by Hospitals and Clinic Groups."

**Test New Antituberculous Drug in South America.**—Shipments of "pyricidin," Nepera's brand of isonicotinic acid hydrazide, have been sent to the government health departments of Mexico, Cuba, Ecuador, Brazil, Chile, Argentina, Venezuela, El Salvador, and Panama. Varying environmental conditions are regarded as being of prime importance in the treatment of any patient or the evaluation of any drug in the field of tuberculosis. Previous supplies of isonicotinic acid hydrazide have been limited to sanatoriums and research centers in the United States, but steps have been effected whereby adequate supplies of "pyricidin" are now available for South America and broad confirmatory evaluation.

**Venereal Disease Symposium.**—The annual symposium on "Recent Advances in the Study of Venereal Diseases" will be held May 1-2 in the auditorium of the Federal Security Building, Washington, D. C., under the joint auspices of the Experimental Therapeutics Study Section of the National Institutes of Health and the American Venereal Disease Association and will be held in conjunction with the 14th annual meeting of the association. All persons interested are invited to attend. Information may be obtained from Frederick W. Appel, Ph.D., executive secretary, Experimental Therapeutics Study Section, National Institutes of Health, Bethesda 14, Maryland, or from Dr. William L. Fleming, Secretary of the American Venereal Disease Association, 750 Harrison Ave., Boston 18.

**Measles.**—The number of cases of measles has remained constant for the past three weeks, 28,825 being reported for the week ending March 15, 28,486 for the previous week, and 29,465 for the week ended March 1. There has been a decline in the number reported in the New England States for the past two weeks, while in the Middle Atlantic States the numbers have shown no material change over three weeks. Aside from a moderate increase in the East North Central and Middle Atlantic States for the current week as compared with the previous two weeks, there have been significant changes in other parts of the country. The cumulative total for the first 11 weeks of 1952 is now 230,471 as compared with 139,370 for the same period of 1951.

**Air Pollution Symposium.**—The second national air pollution symposium will be held May 5-6 at the Huntington Hotel, Pasadena, Calif., under the sponsorship of Stanford Research Institute, in cooperation with California Institute of Technology, the University of California at Los Angeles, and the University of Southern California. The program will cover new techniques in sampling, analysis and instrumentation, fundamental chemistry and physics of the atmosphere, the contribution of internal combustion engines and biological aspects of atmospheric contamination. Management's views on air pollution will be introduced. Members of the executive committee for the 1952 symposium are Frederick C. Lindvall, Ph.D., of the California Institute of Technology, Dean Llewellyn M. K. Boelter, M.S., of UCLA, Dean Robert E. Vivian, Ph.D., of the University of Southern California, and Abe M. Zarem, Ph.D., manager of the Los Angeles Division of the Stanford Research Institute. Headquarters for the symposium have been established at Room 332, 612 S. Flower St., Los Angeles.

**Research Contest in "Toxemias of Pregnancy."**—A two year contest to promote research on "toxemias of pregnancy" has been announced by the American Committe on Maternal Welfare, Inc. The contest is open to students and personnel in the health professions who are not of higher academic rank than instructor or who are of junior rank on the hospital or other staff with which they are connected. Dr. Fred L. Adair, Chicago, president of the committee, stressed that all theses must be based on original work done by the authors and must be submitted no later than January, 1954. First and second prizes of $500 and $250, respectively, will be awarded later in 1954 at the sixth American Committee on Maternal Welfare meeting. All theses submitted will become the property of the committee. During the Fifth American Congress on Obstetrics and Gynecology in Cincinnati, March 31 to April 4, a comprehensive summary was given of all progress and knowledge to date concerning the causes and treatment of the "toxemias." The American Committee on Maternal Welfare, contest sponsor, is a joint national committee of 28 medical, hospital, public health, and nursing organizations. It was founded in 1919 to coordinate all phases of health protection for mothers and their offspring.

# MEETINGS

Alabama, Medical Association of the State of, Montgomery, April 17-19. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery, Secretary.

American Academy of Pediatrics, Areal Meeting, Hotel Statler, Washington, D. C., May 22-24. Dr. E. H. Christopherson, 636 Church St., Evanston, Ill., Executive Secretary.

American Academy of Neurology, Brown Hotel, Louisville, Ky., Apr. 24-25. Dr. Francis M. Forster, 3800 Reservoir Rd. N.W., Washington, D. C., Secretary.

American Association for Thoracic Surgery, Dallas, Texas, May 8-10. Dr. Paul C. Samson, 2938 McClure St., Oakland 9, Calif., Secretary.

American Association of Immunologists, New York, April 14. Dr. John Y. Sugg, 1300 York Ave., New York, Secretary.

American Association of Pathologists and Bacteriologists, New York, April 10-12. Dr. Alan R. Moritz, 2085 Adelbert Road, Cleveland 6, Secretary.

American Association of the History of Medicine, Kansas City, Kans., May 1-3. Dr. Iago Galdston, 2 East 103d St., New York 29, Secretary.

American Association on Mental Deficiency, Philadelphia, May 20-24. Dr. Neil A. Dayton, P. O. Box 96, Willimantic, Conn., Secretary.

American Broncho-Esophagological Association, Royal York Hotel, Toronto, Canada, May 20-21. Dr. Edwin N. Broyles, 1100 North Charles St., Baltimore 1, Secretary.

American College of Allergists, William Penn Hotel, Pittsburgh, April 7-9. Dr. Fred W. Wittich, 401 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American College Health Association, Copley Plaza Hotel, Boston, May 1-3. Miss Edith M. Lindsay, School of Public Health, University of California, Berkeley 4, Calif., Secretary.

American College of Physicians, Cleveland, April 21-25. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Executive Secretary.

American College of Surgeons, Sectional Meetings:

- Tucson, Ariz., Pioneer Hotel, April 7-9. Dr. Meade Clyne, 110 South Scott St., Tucson, Chairman.
- Toronto, Canada, Royal York Hotel, May 15-17. Dr. Stuart D. Gordon, 170 St. George St., Toronto 5, Canada, Chairman.

American Dermatological Association, Broadmoor Hotel, Colorado Springs, Colo., Apr. 23-26. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn., Secretary.

American Electroencephalographic Society, Hotel Claridge, Atlantic City, N. J., May 10-11. Dr. John A. Abbott, Massachusetts General Hospital, Boston 14, Secretary.

American Federation for Clinical Research, Haddon Hall, Atlantic City, N. J., May 4. Dr. Stewart Wolf, 525 East 68th St., New York 21, Secretary.

American Gastro-Enterological Association, Hotel Claridge, Atlantic City, N. J., May 2-3. Dr. Dwight L. Wilbur, 655 Sutter St., San Francisco 2, Secretary.

American Gastroscopic Society, Hotel Claridge, Atlantic City, N. J., May 2-3. Dr. H. Marvin Pollard, University Hospital, Ann Arbor, Mich., Secretary.

American Goiter Association, Chase Hotel, St. Louis, May 1-3. Dr. George C. Shivers, 100 East St. Vrain St., Colorado Springs, Colo., Secretary.

American Gynecological Society, The Homestead, Hot Springs, Va., May 12-14. Dr. John I. Brewer, 104 South Michigan Ave., Chicago, Secretary.

American Heart Association, Hotel Statler, Cleveland, April 17-20. Dr. Willian H. Bunn, 1775 Broadway, New York 19, Secretary.

American Laryngological Association, Royal York Hotel, Toronto, Canada, May 23-24. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia 2, Secretary.

American Laryngological, Rhinological and Otological Society, Royal York Hotel, Toronto, Canada, May 20-22. Dr. C. Stewart Nash, 277 Alexander St., Rochester 7, N. Y., Secretary.

American Neurological Association, Hotel Claridge, Atlantic City, N. J., May 8-10. Dr. H. Houston Merritt, 710 West 168th St., New York 32, Secretary.

American Otological Society, Royal York Hotel, Toronto, Canada, May 18-19. Dr. John R. Lindsay, 950 East 59th St., Chicago 37, Secretary.

American Pediatric Society, Hotel Chamberlin, Old Point Comfort, Va., May 7-9. Dr. Aims C. McGuiness, 237 Medical Laboratories, Univ. of Pennsylvania, Philadelphia 4, Secretary.

American Psychiatric Association, Atlantic City, N. J., May 12-16. Dr. R. Finley Gayle Jr., 6300 Three Chopt Rd., Richmond 21, Va., Secretary.

American Psychoanalytic Association, Chalfonte-Haddon Hall, Atlantic City, N. J., May 8-11. Dr. LeRoy M. A. Maeder, 1910 Rittenhouse Square, Philadelphia 3, Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 5. Dr. William M. M. Kirby, Univ. of Washington School of Medicine, Seattle 5, Secretary.

American Society for Experimental Pathology, New York, April 14-18. Dr. Russell L. Holman, 1542 Tulane Ave., New Orleans 12, Secretary.

American Society for Pharmacology and Experimental Therapeutics, Hotel Statler, New York, April 14-18. Dr. Carl C. Pfeiffer, 1835 W. Polk St., Chicago 12, Secretary.

American Society of Biological Chemists, New York, April 14-18. Dr. Elmer H. Stotz, 260 Crittenden Blvd., Rochester, N. Y., Secretary.

American Surgical Association, White Sulphur Springs, W. Va., Apr. 16-18. Dr. Nathan A. Womack, University Hospitals, Iowa City, Secretary.

American Trudeau Society, Hotel Statler, Boston, May 26. Dr. John D. Steele, 1790 Broadway, New York 19, Secretary.

American Venereal Disease Association, Washington, D. C., May 1-2. Dr. William L. Fleming, 750 Harrison Ave., Boston 18, Secretary.

Arizona Medical Association, Phoenix, April 30-May 3. Dr. Frank J. Milloy, 15 E. Monroe St., Phoenix, Secretary.

Arkansas Medical Society, Little Rock, April 21-23. Dr. William R. Brooksher, 215 Kelley Bldg., Fort Smith, Secretary.

Association of American Physicians, Atlantic City, N. J., May 6-7. Dr. Henry Thomas Jr., 1201 North Calvert St., Baltimore 2, Secretary.

California Medical Association, Biltmore Hotel, Los Angeles, April 27-30. Dr. Albert C. Daniels, 450 Sutter St., San Francisco 8, Secretary.

Catholic Hospital Association of the United States and Canada, Cleveland, May 26-29. Rev. John J. Flanagan, S.J., 1438 South Grand Blvd., St. Louis 4, Director.

nnecticut State Medical Society, Hartford, April 29-May 1. Dr. reighton Barker, 160 St. Ronan Street, New Haven, Secretary.

eration of American Societies for Experimental Biology, New York, April 14-18. Dr. M. O. Lee, 2101 Constitution Avenue, Washington 25, D. C., Secretary.

Florida Medical Association, Hollywood, April 27-30. Dr. Samuel M. Day, P. O. Box 1018, Jacksonville, Secretary.

Georgia, Medical Association of, Atlanta-Biltmore Hotel, Atlanta, May 12-14. Dr. David H. Poer, 875 West Peachtree St. N.E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Honolulu, May 1-4. Dr. I. L. Tilden, 510 S. Beretania St., Honolulu 13, Secretary.

Illinois State Medical Society, Chicago, May 13-15. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary.

Industrial Medical Association, Cincinnati, April 21-24. Dr. Edward C. Holmblad, 28 E. Jackson Blvd., Chicago 4, Managing Director.

Iowa State Medical Society, Des Moines, April 28-30. Dr. Allan B. Phillips, 406 Sixth Avenue, Des Moines 9, Secretary.

John A. Andrew Clinical Society, Memorial Hospital, Tuskegee Institute, Ala., April 6-12. Dr. Eugene H. Dibble Jr., Memorial Hospital, Tuskegee Institute, Secretary.

Kansas Medical Society, Town House, Kansas City, April 27-May 1. Dr. Dale D. Vermillion, 512 New England Bldg., Topeka, Secretary.

Louisiana State Medical Society, Shreveport, April 28-30. Dr. C. Grenes Cole, 1430 Tulane Ave., New Orleans 12, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 28-30. Dr. George H. Yeager, 1211 Cathedral St., Baltimore 1, Secretary.

Massachusetts Medical Society, Hotel Statler, Boston, May 20-22. Dr. H. Quimby Gallupe, 22 Fenway, Boston 15, Secretary.

Mid-Continent Psychiatric Association, President Hotel, Kansas City, Mo., April 26-27. Dr. Paul Hines, 2625 W. Paseo, Kansas City, Mo., Secretary.

Minnesota State Medical Association, Minneapolis, May 26-28. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Mississippi State Medical Association, Jackson, May 13-15. Mr. Roland B. Kennedy, 508 First Federal Bldg., Jackson, Executive Secretary.

National Tuberculosis Association, Copley Plaza and Statler Hotels, Boston, May 26-30. Mr. Kemp D. Battle, 1790 Broadway, New York 19, Secretary.

Nebraska State Medical Association, Cornhusker Hotel, Lincoln, May 12-15. Dr. R. B. Adams, 1315 Sharp Bldg., Lincoln 8, Secretary.

New Jersey, Medical Society of, Haddon Hall, Atlantic City, May 19-21. Dr. Marcus H. Greifinger, 315 West State St., Trenton 8, Secretary.

New Mexico Medical Society, Carlsbad, May 8-10. Dr. L. G. Rice Jr., 221 West Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Hotel Statler, New York, May 12-16. Dr. Walter P. Anderton, 292 Madison Ave., New York 17, Secretary.

North Carolina, Medical Society of the State of, Hotel Carolina, Pinehurst, May 5-7. Dr. Millard D. Hill, 203 Capitol Club Bldg., Raleigh, Secretary.

Northern Tri-State Medical Association, University of Notre Dame, South Bend, Ind., April 15. Dr. William H. Gordon, 1553 Woodward Ave., Detroit, Secretary.

Ogden Surgical Society, Orpheum Theater, Ogden, Utah, May 21-23. Dr. George M. Fister, Ogden, Utah, President.

Ohio State Medical Association, Cleveland, May 20-22. Mr. Charles S. Nelson, 79 East State St., Columbus 15, Executive Secretary.

Oklahoma State Medical Association, Oklahoma City, May 19-21. Mr. R. H. Graham, 1227 Classen St., Oklahoma City, Executive Secretary.

Rhode Island Medical Society, Providence, May 6-8. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.

Society for Pediatric Research, Old Point Comfort, Va., May 5-6. Dr. Sydney S. Gellis, 300 Longwood Ave., Boston 15, Secretary.

Society of American Bacteriologists, Hotel Statler, Boston, April 27-May 1. Dr. Henry W. Scherp, 260 Crittenden Blvd., Rochester 20, N. Y., Secretary.

Society of Biological Psychiatry, Atlantic City, N. J., May 11. Dr. George N. Thompson, 1136 West Sixth St., Los Angeles 17, Secretary.

South Carolina Medical Association, Ocean Forest Hotel, Myrtle Beach, May 13-15. Dr. N. B. Heyward, 120 West Cheves St., Florence, Secretary.

South Dakota State Medical Association, Sioux Falls, May 18-20. Dr. L. J. Pankow, 302 First National Bank Bldg., Sioux Falls, Secretary.

Southern Oregon Medical Society, Roseburg, May 13. Dr. F. C. Adams, 1435 Esplanade St., Klamath Falls, Secretary.

Tennessee State Medical Association, Andrew Johnson Hotel, Knoxville, April 7-9. Mr. V. O. Foster, 504 Doctors Bldg., Nashville 3, Executive Secretary.

Texas Medical Association, Dallas, May 4-7. Dr. Sam N. Key Sr., 700 Guadalupe St., Austin 3, Secretary.

Western Association of Industrial Physicians and Surgeons, Biltmore Hotel, Los Angeles, April 26. Dr. David D. Holaday, American Can Company, Third and 20th Sts., San Francisco 7, Secretary.

## INTERNATIONAL

Australasian Medical Congress, Melbourne Victoria, Australia, Aug. 22-30. Dr. C. H. Dickson, Medical Society Hall, 426 Albert St., East Melbourne, Victoria, Australia, Hon. General Secretary.

Commonwealth and Empire Health and Tuberculosis Conference, Central Hall, London, England, July 8-13. Dr. J. H. Harley Williams, Tavistock House North, Tavistock Sq., London, W.C.1, England, Secretary General.

Congress of the International Diabetes Federation, Leyden, Netherlands, July 7-12. Dr. F. Gerritzen, 33. Prinsegracht, The Hague, Netherlands, Secretary.

European Congress of Cardiology, University of London, Bloomsbury, W.C.1, England, Sept. 10-12. Dr. K. Shirley Smith, 35 Wimpole St., London, W.1, England, Secretary.

European Society of Cardiovascular Surgery, Strasbourg, France, Oct. 3-4. Sir James Learmonth, Department of Surgery, University New Buildings, Edinburgh 8, Scotland.

Interamerican Cardiological Congress, Buenos Aires, Argentina, Aug. 31-Sept. 7. Dr. Blas Moia, Larrea 1132, Buenos Aires, Argentina, Secretary-General.

Inter-American Congress of Public Health, Havana, Cuba, Sept. 27-Oct. 1. Pan-American Sanitary Bureau, 2001 Connecticut Ave., Washington, D. C.

Inter-American Congress of Radiology, Mexico City, Mexico, Nov. 2-6 Dr. Guido Torres Martinez, Marsella No. 11, Mexico, D.F., Secretary-General.

International College of Surgeons, Madrid, Spain, May 20-24. Dr. Max Thorek, 850 West Irving Park Road, Chicago, Ill., U. S. A., Secretary-General.

International Congress of Biochemistry, Paris, France, July 21-27. Prof. Jean Courtois, 4, Avenue de l'Observatoire, Paris 6^e^, France, Secretary.

International Congress of Comparative Pathology, Madrid, Spain, May 4-11. Prof. Carda-Aparici, Calle Fernando VI.8, Madrid, Spain, Secretary.

International Congress of Dermatology and Syphilology, London, England, July 21-26. Dr. Gordon B. Mitchell-Heggs, 5, Lisle St., London, W.C.2, England, General Secretary.

International Congress on Diabetes, Leyden, The Netherlands, July 7-12. Dr. F. Gerritzen, 33, Prinsegracht, The Hague, Netherlands.

International Congress of Dietetics, Royal Tropical Institute, Amsterdam, The Netherlands, July 7-11. Miss Diane J. Ten Haaf, Educational Bureau of the Nutritional Council, 42 Koninginnegracht, The Hague, Netherlands, General Secretary.

International Congress on Diseases of the Chest, Rio de Janeiro, *Brazil*, Aug. 24-30. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, Executive Secretary.

International Congress of Haematology, Mar del Plata, Argentina, Sept. 21-26. Dr. Carlos Reussi, Anchorena 1710, Buenos Aires, Argentina, Secretary.

International Congress of Health Technicians, Palais de la Mutualite, Paris, France, June 9-14. Secretariat General, 6 Square Desaix, Paris XV$^e$, *France.*

International Congress of the History of Medicine, Nice-Cannes, France, and Monaco, Sept. 8-18. Dr. F. A. Sondervorst, 124 Avenue des Allies, Louvain, Belgium, Secretary-General.

International Congress of Internal Medicine, Friends House, London, N.W.1, Eng. Sept. 15-18. Sir Harold Boldero, 12 Pall Mall East, London, S.W.1, England, Secretary.

International Congress on Medical Records, London, England, Sept. 7-12. Miss Gwen Perkins, 120 C Street S.E., Washington, D. C., Chairman.

International Congress of Medicine and Sport, Paris, France. May 29-June 1. *Prof. Chailley-Bert, 1 rue Lacretelle, Paris 15$^e$, France, Chairman.*

International Congress on Neuropathology, Rome, Italy, Sept. 8-13. Dr. Armando Ferraro, 722 W. 168th St., New York, N. Y., U. S. A., Secretary General.

International Congress of Oto-neuro-ophthalmology, Lisbon and Estoril, Portugal, April 22-26. Prof. Diogo Furtado, Servico de Neurologia, Hospital dos Capuchos, Lisbon, Portugal, General Secretary.

International Congress of Physical Medicine, London, England, July 14-19. Dr. A. C. Boyle, 45, *Lincoln's Inn Fields, London, W.C.2,* England, Hon. Secretary.

International Congress of Physiopathology of Animal Reproduction and Artificial Insemination, Copenhagen, Denmark, July 7-10. Prof. Ed. Sorensen, The Royal Veterinary and Agricultural College, Bülowsvej 13, Copenhagen V, Denmark.

International Congress for Thermalism and Climatothalassotherapy, Nice-Cannes, France, April 3-8.

International Congress of Urology, The Waldorf-Astoria, New York, N. Y., U. S. A., Sept. 15-18. Dr. John A. Taylor, 2 East 54th St., New York, N. Y., U. S. A., Secretary-General.

International Society of Geographic Pathology, Liège, Belgium, July 15-18. Dr. Fred C. Roulet, Habelstr. 24, Basel, Switzerland, Secretary General.

International Union Against Tuberculosis, Rio de Janeiro, Brazil, Aug. 24-27. Prof. Etienne Bernard, 66 Blvd. St. Michel, Paris 6e, France, Secretary-General.

Neuroradiologic Symposium, Stockholm, Sweden, Sept. 17-20. Docent Ake Lindbom, Symposium Neuroradiologicum, Serafimerlasarettet, Stockholm K., Sweden, Secretary.

Pan-American Congress of Gastroenterology, Mexico City, D F., May 11-17. Dr. R. Flores-Lopez, Calle Dr. Balmis, No. 148, Mexico City, D.F., Secretary.

Pan-European Congress of Gastroenterology, Bologna, Florence and Rome, Italy, April 20-26. Prof. Guido Bassi, Policlinic of St. Orsola, Bologna, Italy, Secretary.

World Medical Association, Athens, Greece, Oct. 12-16. Dr. Louis H. Bauer, 2 East 103d St., New York 29, N. Y., Secretary General

# EXAMINATIONS AND LICENSURE

## BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 24-26, 1952. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery 4.

Alaska:* *Examination.* Juneau. On application in other towns where there are board members. *Reciprocity.* On application. Sec., Dr. W. M. Whitehead, Box 140, Juneau.

Arizona:* *Examination.* Phoenix, April 15-17. *Reciprocity.* Phoenix, April 19. Sec., Dr. J. H. Patterson, 316 W. McDowell St., Phoenix.

Arkansas:* *Examination. Regular* Little Rock, June 5-6. Sec., Dr. Joe Verser, Harrisburg. *Homeopathic.* Little Rock, June 10-11. Sec., Dr. Carl S. Bungart, 105 N. 14th St., Fort Smith. *Eclectic.* Little Rock, June 5-6. Sec., Dr. Frank C. Smith, 2301 Broadway, Little Rock.

California: *Written.* San Francisco, June 23-26; Los Angeles, Aug. 18-21; Sacramento, Oct. 20-23. Application must be received at least two weeks prior to date of examination. *Oral for Reciprocity Applicants.* San Francisco, June 21; Los Angeles, Aug. 16; San Francisco, Nov. 8. Applicants are requested not to arrange to come to an oral examination until they receive notice from the Credentials Committee. *Oral and Clinical for Foreign Medical School Graduates.* San Francisco, June 22; Los Angeles, Aug. 17; San Francisco, Nov. 9. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

Colorado:* *Examination.* Denver, June 10-12. Final date for filing application is May 12. *Reciprocity.* Denver, April 8. Final date for filing application was Mar. 10. Sec., Dr. Samuel H. Brown, 831 Republic Bldg., Denver.

Delaware: Dover, July 8-10. Sec., Dr. Joseph S. McDaniel, 229 South State St., Dover.

Florida:* *Examination.* Jacksonville, June 29-July 1. Sec., Dr. Homer L. Pearson, 701 Dupont Bldg., Miami.

*Georgia: Atlanta and Augusta, June. Sec., Mr. R. C. Coleman, 111 State* Capital, Atlanta 3.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Ex. Sec., Dr. Austin W. Matthis, Agana.

Hawaii: *Examination.* Honolulu, July 14-17. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

Idaho: Boise, July 14-16. Sec., Mr. Armand L. Bird, 305 Sun Bldg., Boise.

Illinois: *Examination.* Chicago, June 24-26 and Oct. 7-9. Supt. of Regis., Mr. Charles F. Kervin, Capitol Bldg., Springfield.

Indiana: Indianapolis, June 1952. Sec., Dr. Paul R. Tindall, 1138 K of P Bldg., Indianapolis 4.

Iowa:* *Examination.* Iowa City, June 9-11. Sec., Dr. M. A. Royal, 506 *Fleming Bldg., Des Moines.*

Kansas: Kansas City, June 4-5. Sec., Dr. O. W. Davidson, 864 New Brotherhood Bldg., Kansas City.

Kentucky: *Examination.* Louisville, June 3-5. Sec., Dr. Bruce Underwood, 620 S. Third St., Louisville.

Maryland: *Examination.* Baltimore, June 17-20. Sec., Dr. Lewis P. Grundy, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 17-18. *Sec., Dr. John A. Evans, 6029 Bellona Ave., Baltimore.*

Michigan:* *Examination.* June. Sec., Dr. J. E. McIntyre, 100 W. Allegan St., Lansing 8.

*Minnesota: Minneapolis, April 15-17. Sec., Dr. Julian F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.*

Nebraska: *Examination.* Omaha, June 16-18. Director, Mr. Husted K. Watson, Bureau of Examining Boards, Room 1009, State Capitol, Lincoln.

New Jersey: *Examination.* Trenton, June 17-20. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

New Mexico:* Santa Fe, April 14-15. Sec., Dr. Charles J. McGoey, Coronado Bldg., Santa Fe.

North Carolina: *Reciprocity.* Pinehurst, May 5. *Written.* Raleigh, June *16-19; Reciprocity. Raleigh, June 17. Sec., Dr. Joseph J. Combs, 716* Professional Bldg., Raleigh.

North Dakota: *Examination.* Grand Forks, July 9-11. *Reciprocity.* Grand Forks, July 12. Sec., Dr. C. J. Glaspel, Grafton.

Ohio: *Examination.* Columbus, June 17-20. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

Oklahoma:* *Examination.* Oklahoma City, June 4-5. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon:* *Reciprocity.* Portland, April 18-19. *Examination.* Portland, July. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

South Carolina: *Reciprocity.* Columbia, April 7. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota:* Rapid City, July 15. Sec., Dr. C. B. McVay, Yankton Clinic, Yankton.

Texas: Fort Worth, June 19-21. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth.

Utah: *Examination.* Salt Lake City, July. Asst. Dir., Mr. Frank E. Lees, 314 State Capitol Bldg., Salt Lake City 1.

Virginia: *Examination.* Richmond, June 12-14. *Reciprocity.* Richmond, June 11. Sec., Dr. K. D. Graves, 631 First St., S.W., Roanoke.

Virgin Islands: St. Thomas, June 4-5. Sec., Dr. Earle M. Rice, St. Thomas.

West Virginia: Charleston, April 7-8. Sec., Dr. H. H. Dyer, State Office Bldg. No. 3, Charleston 5.

Washington: Seattle, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

*Wisconsin:* Milwaukee, July 8-10. Sec., Dr. A. G. Koehler, 46 Washing*ton Blvd., Oshkosh.

## BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: *Examination.* On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

Arkansas: *Examination.* Little Rock, May 1-2. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

District of Columbia: *Examination.* Washington, April 21-22. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington, D. C.

Florida: Gainesville, June 7. *Examination.* Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

*Michigan: Examination. May. Sec., Miss Eloise LeBeau, 501 W. Michigan* Ave., Lansing 15.

Oklahoma: *Examination.* Oklahoma City, April 14. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: *Examination.* Portland, June 7, Sept. 6 and Dec. 6. Sec., Dr. Charles D. Byrne, State Board of Higher Education, University of Oregon, Eugene.

South Dakota: Vermillion, June 13-14. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Texas: Austin, April 18-19. *Examination.* Examination may also be given in Galveston, Dallas and Houston. Sec., Bro. Raphael Wilson, 306 Nalle Bldg., Austin.

Wisconsin: *Examination.* Milwaukee, June 7. Sec., Mr. W. H. Barber, *Ripon College, Ripon.*

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* Basic Science Certificate required.

# DEATHS

**Coman, Francis Dana,** New York; born in Wellsville, N. Y., Oct. 31, 1895; Johns Hopkins University School of Medicine, Baltimore, 1924; member of the faculty of his alma mater, serving in the departments of anatomy, surgery, and psychiatry from 1924 to 1939, and since that time professor of nutrition at Florida Southern College in Lakeland; assistant resident surgeon and lecturer at the training school, Johns Hopkins Hospital in Baltimore, 1927-1928; consulting medical director of the U. S. Antarctic Service from 1933 to 1935 and from 1939 to 1941; trustee of the Andean Anthropological Institute; member of the environmental protection committee on quartermaster problems, National Research Council, medical director of the Byrd Antarctic expedition from 1928 to 1930 and the Ellsworth Transantarctic Expedition, 1934-1935; led the Coman Oceanographic Expedition in the Pacific Equatorial Islands, 1935-1936; held the Congressional Gold Medal of Honor for his work in the Antarctic and received the Croix de Guerre from the French government during World War I for service with the French 22nd Infantry Division; during World War II was consultant for the war plans division of the U. S. Air Force in 1941, served on the War Production Board in 1941-1942, and from 1942 to 1946 was consultant to the military planning division of the Quartermaster General's Office; served as scientific adviser on research and development in the logistics division of the U. S. War Department General Staff since 1946; chairman of panel on expeditions, committee on geographic exploration of the Research and Development Board in 1947-1948, and since then has been consultant of the committee on geophysics and geography; U. S. delegate to the Pacific Science Congress in New Zealand in 1949; member of the American Association of Anatomists, American Public Health Association, American Geographical Society, and the Maryland Historical Society; fellow of the American Association for the Advancement of Science; past president of the American Polar Society; fellow and, since 1948, deputy director of the Arctic Institute of North America; received an LL.D. from Florida Southern College, Lakeland in 1940; died at the Canadian United States test and development station in north central Canada, Jan. 28, aged 56.

**Vedder, Edward Bright** ⊕ Colonel, U. S. Army, retired, Oakland, Calif.; born in New York June 28, 1878; University of Pennsylvania Department of Medicine, Philadelphia, 1902; en-ed the regular Army in 1903; served during World War I; moted through the various ranks to that of colonel in July, 29; served at various stations in the United States and the Philippine Islands from 1904 to 1910; retired Oct. 31, 1933 for disability in line of duty; chief of medical research division of the U. S. Arsenal at Edgewood, Md., from 1922 to 1925; assistant professor of pathology, Army Medical School, Washington, D. C., from 1913 to 1919 and director from 1930 to 1932; from 1933 to 1942 professor of experimental medicine, George Washington University School of Medicine in Washington, D. C.; fellow of the American Association for the Advancement of Science, American College of Surgeons, and the American College of Physicians; past president of the American Society of Tropical Medicine; member of the U. S. Army Board for the Study of Tropical Diseases from 1910 to 1913; senior member of the U. S. Army Board of Medical Research from 1925 to 1928; member of Delta Kappa Epsilon, Sigma Xi, Washington Academy of Sciences, Washington Academy of Medicine, and Association of Military Surgeons of the United States; director of medical education, Alameda County Hospital, from 1942 to 1947; received the honorary degree of doctor of science from the University of Rochester in 1924; author of "Beriberi," "Medical Aspects of Chemical Warfare," "Medicine: Its Contribution to Civilization," "Prevalence of Syphilis in the Army," "Sanitation for Medical Officers," and "Syphilis and Public Health"; died in Walter Reed General Hospital, Washington, D. C., Jan. 30, aged 73.

**Beck, Frederick Louis,** Cheyenne, Wyo.; born in Otterville, Ill., April 13, 1871; University of Nebraska College of Medicine, Omaha, 1903; specialist certified by the American Board of Otolaryngology; fellow of the American College of Surgeons; member of the American Medical Association and of its House of Delegates in 1935-1936; past president and at one time treasurer of the Wyoming State Medical Society; past president and secretary of the Laramie County Medical Society; formerly secretary of the Fillmore County (Neb.) Medical Society; past president of the Colorado Otolaryngological Society; affiliated with Laramie County Memorial Hospital, where he had served as president and secretary of the staff; died Jan. 8, aged 80, of coronary thrombosis.

**Metcalf, Carleton Ray,** Concord, N. H.; Harvard Medical School, Boston, 1906; member of the American Medical Association and the New England Surgical Society; for many years secretary-treasurer of the New Hampshire Medical Society; fellow of the American College of Surgeons; past president of the New Hampshire Surgical Club; formerly on the board of education; served overseas during World War I; assistant superintendent of the Massachusetts General Hospital, Boston, from 1908 to 1911; formerly affiliated with New Hampshire Memorial Hospital and Margaret Pillsbury General Hospital; died Jan. 17, aged 71, of fatty degeneration of the liver.

**Redish, Julius** ⊕ Lynbrook, N. Y.; University and Bellevue Hospital Medical College, New York, 1934; assistant professor of medicine at his alma mater, now known as the New York University College of Medicine; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Heart Association; on the staffs of South Nassau Communities Hospital in Rockville Centre, N. Y., Meadowbrook Hospital, Hempstead, N. Y., Brunswick Hospital, Amityville, N. Y., and Bellevue Hospital, New York; died Jan. 17, aged 41, of coronary occlusion with with myocardial infarction.

**Kerby, James Philip** ⊕ Salt Lake City; George Washington University School of Medicine, Washington, D. C., 1910; member of the House of Delegates of the American Medical Association from 1945 through 1949; past president of Salt Lake County Medical Society; member of the American Roentgen Ray Society, Radiological Society of North America, and the American College of Radiology; served during World War I; director of the Utah Division, American Cancer Society; on the staff of St. Mark's Hospital; died Jan. 26, aged 65, of pulmonary metastasis, from malignant degeneration of irradiation lesions of the right hand.

**Balentine, Percy L.,** Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1894; member of the American Academy of Ophthalmology and Otolaryngology; died Dec. 11, aged 80.

**Bassett, Norman Hallowell** ⊕ Atlantic City, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1912; consultant, Atlantic City Hospital; died Jan. 2, aged 67, of coronary thrombosis.

**Beddoe, Robert Earl,** Shawnee, Okla.; Baylor University College of Medicine, Dallas, Texas, 1909; member of the American Medical Association, State Medical Association of Texas, and the American College of Hospital Administrators; died in City Hospital Jan. 19, aged 69, of a heart attack.

**Blair, Aaron L.,** Winchester, Ky.; University of Tennessee Medical Department, Nashville, Tenn., 1899; died in Clark County Hospital, Jan. 6, aged 88.

**Bown, Albert Joseph** ⊕ Peoria, Ill.; University of Illinois College of Medicine, Chicago, 1928; specialist certified by the American Board of Radiology; served during World Wars I and II; on the staff of St. Francis Hospital in Kewanee; died Nov. 11, aged 53, of hemolytic anemia.

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⊕ Indicates Fellow of the American Medical Association.

**Brennan, John Patrick** ⊕ Camden, N. J.; Jefferson Medical College of Philadelphia, 1918; specialist certified by the American Board of Otolaryngology; affiliated with Camden County General Hospital and the Camden County Hospital for Mental Diseases in Blackwood, Cooper Hospital and Our Lady of Lourdes Hospital, where he died Jan. 12, aged 58, of coronary occlusion.

**Buist, George Lamb**, Sparta, N. J.; Yale University School of Medicine, New Haven, 1900; formerly practiced in Brooklyn, where he was a member of the Brooklyn Hospital staff; died Dec. 28, aged 79, of arteriosclerosis.

**Bunker, Robert E.**, Magnolia, Ohio; Chicago Homeopathic Medical College, 1904; died Dec. 29, aged 71, of coronary occlusion.

**Burr, Wayne Billingsly**, Redondo Beach, Calif.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1913; on the staff of Seaside Memorial Hospital in Long Beach; died Jan. 14, aged 67, of coronary sclerosis.

**Burt, James Clark** ⊕ Pittsburgh; Jefferson Medical College of Philadelphia, 1902; specialist certified by the American Board of Urology; formerly on the faculty of the University of Pittsburgh School of Medicine; member of the American Urological Association; fellow of the American College of Surgeons; on the staff of St. Francis Hospital and Allegheny General Hospital, where he died Jan. 19, aged 74.

**Calitri, Constant** ⊕ Lawrence, Mass.; Baltimore Medical College, 1907; at one time school physician; affiliated with Bessie Burke Memorial and Clover Hill hospitals; died Jan. 16, aged 64, of coronary occlusion.

**Carr, George Byron**, West Lynn, Mass.; Boston University School of Medicine, 1895; member of the American Medical Association; for many years on the staff of Union Hospital in Lynn; died Dec. 28, aged 81, of arteriosclerotic heart disease.

**Chamberlain, Aims Reading** ⊕ Maplewood, N. J.; Columbia University College of Physicians and Surgeons, New York, 1905; died in Orange (N. J.) Memorial Hospital Dec. 27, aged 72, of cerebral thrombosis, hypertension and nephrolithiasis.

**Chandlee, Benjamin Herbert** ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1924; fellow of the American College of Surgeons; clinical instructor in surgery, Woman's Medical College of Pennsylvania; surgeon, Frankford Hospital, associate surgeon, Northeastern Hospital, and consulting surgeon, Friends Hospital; died Jan. 6, aged 54, of acute myocardial infarction.

**Cocke, Jere Ellis**, Asheville, N. C.; Louisville (Ky.) Medical College, 1905; member of the American Medical Association; served during World War I; for many years secretary-treasurer of the Buncombe County Medical Society; once deputy city health officer; for many years on the staff of the old Asheville Mission Hospital; died Jan. 26, aged 70, of arthritis.

**Coffey, Roy Calhoun**, Bethany, Ill.; Northwestern University Medical School, Chicago, 1911; member of the American Medical Association; past president of the Moultrie County Medical Society; served on the high school board for many years; died in St. Mary's Hospital, Decatur, Dec. 29, aged 71, of arteriosclerotic heart disease.

**Dollear, Albert Henry** ⊕ Jacksonville, Ill.; St. Louis University School of Medicine, 1904; fellow of the American College of Physicians; member of the American Psychiatric Association; medical superintendent of the Norbury Sanatorium; died recently, aged 74, of arteriosclerotic heart disease.

**Dovey, Howard LeRoy** ⊕ Mercersburg, Pa.; Maryland Medical College, Baltimore, 1911; died in Washington County Hospital, Hagerstown, Md., Dec. 22, aged 63, of coronary occlusion.

**Dumond, Vanny Henry** ⊕ Bay City, Mich.; Detroit College of Medicine, 1910; past president of the Bay County Medical Society; served during World War I; on the staffs of Mercy and Bay City General hospitals; died Dec. 4, aged 64, of acute myocardial infarction.

**Fitzgibbon, William**, Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1897; died Dec. 25, aged 84, of chronic myocarditis.

**Genereux, Joseph Olivier**, Webster, Mass.; Medical School of Maine, Portland, 1884; member of the American Medical Association; for many years member of the school committee; affiliated with Webster District Hospital, where he was the first president of the staff; died Dec. 19, aged 92.

**Hagemann, Anna Wilhelmina**, Fort Thomas, Ky.; Eclectic Medical College, Cincinnati, 1914; died in Summit, N. J., recently, aged 82, of chronic cardiovascular disease.

**Hawkins, Wilbur J.**, Millsboro, Pa.; College of Medicine and Surgery (Physio-Medical College), 1901; member of the American Medical Association; died Nov. 13, aged 74, of carcinoma of the prostate.

**Hennerich, Otto Andrew Lewis**, Hays, Kan.; St. Louis University School of Medicine, 1909; member of the American Medical Association; fellow of the American College of Surgeons; for many years on the staff of St. Anthony's Hospital; died Dec. 7, aged 66, of coronary occlusion.

**Hogan, Arthur Rush**, Burlington, Vt.; University of Vermont College of Medicine, Burlington, 1922; assistant professor of clinical surgery at his alma mater; served during World War I; member of the American Medical Association; fellow of the American College of Surgeons; attending surgeon and urologist at Fanny Allen Hospital and Bishop De Goesbriand Hospital, where he died suddenly recently, aged 54, of hypertension.

**Leith, George Guyford**, Wilton Junction, Iowa; State University of Iowa College of Medicine, Iowa City, 1908; member of the American Medical Association; died in University Hospital, Iowa City, Dec. 21, aged 67, of coronary thrombosis.

**Mace, Margaret**, North Wildwood, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1905; for many years police surgeon and school physician; died Dec. 16, aged 87.

**Martino, Salvatore V.**, Auburn, N. Y.; Regia Università di Napolí Facoltá di Medicina e Chirurgia, Italy, 1915; member of the staff of Crouse-Irving Hospital in Syracuse; served during World War I as a captain in the Italian Army Medical Corps; died Dec. 29, aged 67.

**Mount, Louis Burgh** ⊕ St. Petersburg, Fla.; Cornell University Medical College, New York, 1905; specialist certified by the American Board of Dermatology and Syphilology; member of the American Dermatological Association; on the staff of Mound Park Hospital; died Dec. 10, aged 71, of cerebral hemorrhage.

**Owsley, Emma Frances Young**, London, Ohio; Ohio Medical University, Columbus, 1898; at one time practiced in Dayton, where she was a member of the board of health; died in Columbus, Dec. 17, aged 79, of cerebral hemorrhage.

**Schmidt, Otto V. Mackenty** ⊕ New York; McGill University Faculty of Medicine, Montreal, Canada, 1922; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; on the staff of the Manhattan Eye, Ear, and Throat Hospital; died suddenly Jan. 15, aged 52.

**Seidler, William A.** ⊕ Jamaica, Iowa; St. Louis College of Physicians and Surgeons, 1902; served on the state board of health and as president of the board of directors of the Perry State Bank; died Dec. 24, aged 73.

**Sevey, Leon Edmund** ⊕ Grand Rapids, Mich.; University of Pittsburgh School of Medicine, 1913; past president of the Kent County Medical Society and the Michigan Society of Industrial Surgeons; member of the Industrial Medical Association; served overseas during World War I; on the courtesy consulting surgical staff at Butterworth Hospital; on the consulting surgical staffs, St. Mary's Hospital and Blodgett Memorial Hospital, where he died Dec. 26, aged 60, of carcinoma.

**Shaw, Walter Corson**, Ridgway, Pa.; Jefferson Medical College of Philadelphia, 1906; fellow of the American College of Surgeons; served on the Mexican border, and during World War I; on the staff of Andrew Kaul Memorial Hospital in St. Marys; died Dec. 8, aged 68, of cerebral hemorrhage.

**Slater, Thomas H.**, Atlanta, Ga.; Meharry Medical College, Nashville, Tenn., 1890; died Feb. 2, aged 86.

**Speck, Carl Thomas,** Cleveland, Tenn.; University of Nashville Medical Department, 1908; affiliated with Speck Hospital; died Jan. 16, aged 69.

**Starnes, Brand** ⊕ New Lisbon, Wis.; Northwestern University Medical School, Chicago, 1907; served overseas dring World War I; affiliated with St. Mary's Hospital in Sparta, where he died Jan. 16, aged 69.

**Starzynski, Thaddeus Anthony,** Tucson, Ariz.; Western Pennsylvania Medical College, Pittsburgh, 1907; died Dec. 25, aged 66.

**Stickler, Benjamin Franklin,** Columbia City, Ind.; Indiana University School of Medicine, Indianapolis, 1911; served as a member of the county board of health and as county coroner; died in Norways Sanatorium, Indianapolis, Jan. 18, aged 66, of cerebral hemorrhage and diabetes mellitus.

**Stutts, Baldwin Shields,** Dunnellon, Fla.; University of Alabama School of Medicine, Mobile, 1909; past president of the Marion County Medical Society; affiliated with Munroe Memorial Hospital in Ocala; served in France during World War I; died in Williston Dec. 27, aged 63, of tuberculous pneumonia.

**Sudarski, Mendel Isaac** ⊕ New York; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, 1912; on the staff of the Maimonides Hospital in Brooklyn; died Dec. 30, aged 66.

**Susskind, Myron V.** ⊕ Jackson, Mich.; University of Michigan Medical School, Ann Arbor, 1933; served during World War II; died suddenly Jan. 29, aged 49, of coronary heart disease.

**Syndergaard, Hyrum Francis,** Los Angeles; the Hahnemann Medical College and Hospital, Chicago, 1914; died recently, aged 68, of chronic myocarditis.

**Tanner, Ivins Snow** ⊕ Staten Island, N. Y.; George Washington University School of Medicine, Washington, D. C., 1932; served during World War II; affiliated with Staten Island Hospital, where he died Feb. 4, aged 51, of coronary occlusion.

**Taylor, Frederick Whitaker** ⊕ Provo, Utah; University of the City of New York Medical Department, New York, 1892; member of the House of Delegates of the American Medical Association in 1906; fellow of the American College of Surgeons; past president of the Utah State Medical Association and the Utah County Medical Society; for many years member of the state board of medical examiners; served during World War I; affiliated with Utah Valley and Utah State hospitals; died Jan. 11, aged 85, of coronary occlusion.

**Thompson, Arthur Francis,** New Haven, Conn.; New York Homeopathic Medical College and Hospital, New York, 1898; member of the Medical Society of New Jersey; formerly practiced in East Orange, where he was affiliated with East Orange General Hospital for many years; died Dec. 29, aged 76, of arteriosclerotic heart disease.

**Tooker, Orlando Arnold,** Lansing, Mich.; Detroit College of Medicine, 1894; died Jan. 16, aged 80, of congestive myocardial failure.

**Umsted, William Maitland,** Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1889; member of the American Medical Association; died Jan. 17, aged 88, of virus pneumonia.

**Upson, George Dwight,** Greenwich, Conn.; Western Reserve University Medical Department, Cleveland, 1889; formerly practiced in Cleveland, where he was on the staffs of St. Vincent Charity and St. Alexis hospitals; died in Cleveland Dec. 27, aged 85, of Parkinson's disease.

**Van Schott, Gerard Johan V.,** Passaic, N. J.; Howard University College of Medicine, Washington, D..C., 1888; Georgetown University School of Medicine, Washington, D. C., 1889; served as health officer and city physician; one of the organizers and formerly staff member of Passaic General Hospital; died Dec. 14, aged 96, of arteriosclerotic heart disease.

**Vickery, Orris Storer,** Belfast, Maine; Syracuse University College of Medicine, 1904; chairman of the school board; at various times chairman of the county board of commissioners; for many years medical examiner for Waldo County; died Dec. 23, aged 73.

**Wall, Charles Ira** ⊕ Rainelle, W. Va.; Maryland Medical College, Baltimore, 1903; one of the founders of East Rainelle General Hospital, serving as president of the institution until his retirement in 1948; died Jan. 23, aged 72, of carcinoma of the mouth and diabetes mellitus.

**Wall, Malcolm Musgrave,** San Francisco; Vanderbilt University School of Medicine, Nashville, Tenn., 1935; served during World War II; died Jan. 1, aged 42.

**Ward, George Fletcher,** Detroit; Syracuse University College of Medicine, 1913; member of the American Medical Association; died Jan. 19, aged 67, of congestive heart failure.

**Ward, Thomas A. Miller,** Chelan, Wash.; Kentucky School of Medicine, Louisville, 1887; member of the American Medical Association; on the staff of Lake Chelan Community Hospital, where he died Dec. 26, aged 87, of pulmonary edema.

**Wheet, Frederick Eugene,** Westbrook, Me.; New York University Medical College, 1892; member of the American Medical Association; for many years city physician; served during World War I; affiliated with Westbrook Hospital; died Jan. 16, aged 84, of pulmonary tuberculosis.

**Whitfield, Amelia Martha Atkins,** Los Angeles; University of Michigan Homeopathic Medical School, Ann Arbor, 1878; the Hahnemann Medical College and Hospital, Chicago, 1883; died Dec. 24, aged 94, of arteriosclerosis.

**Whitley, Ayer M. D.** ⊕ Charlotte, N. C.; Baltimore Medical College, 1908; on the staff of the Mercy Hospital, where he diec Dec. 28, aged 67, of coronary thrombosis.

**Wiley, Herbert Henri,** Algonac, Mich.; Detroit College of Medicine, 1899; for many years member of the board of education served as director and vice-president of the Utica State Bank died Jan. 20, aged 78, of carcinoma of the prostate.

**Wilke, Julian Otto,** Covina, Calif.; Johns Hopkins Universit School of Medicine, Baltimore, 1922; member of the America Medical Association; affiliated with Covina Inter-Communit Hospital, died Jan. 14, aged 57, of coronary disease.

**Winn, James Warren,** Higbee, Mo.; Missouri Medical Colleg St. Louis, 1895; member of the American Medical Associatio died in St. Joseph's Hospital, Boonville, Dec. 11, aged 80, o pancreatic disease and arteriosclerosis.

**Woodburn, Charles McKeehan,** Binghamton, N. Y.; Universit of Pennsylvania Department of Medicine, Philadelphia, 189 member of the American Medical Association; formerly on th staffs of the Robert Packer Hospital in Sayre, Pa., and Tiog County General Hospital in Waverly; served during World Wa I; died in Towanda, Pa., Jan. 17, aged 77, of coronary occlusion

**Zukerman, Morris,** Rock Island, Ill.; State University of Iow College of Medicine, Iowa City, 1943; member of the America Medical Association; specialist certified by the American Boar of Internal Medicine; certified by the National Board of Medical Examiners; affiliated with Public Hospital, Moline (Ill.) an St. Anthony's hospitals; died in Iowa City recently, aged 33, o cerebral hemorrhage.

## DIED WHILE IN MILITARY SERVICE

**Freeman, Franklin Otis,** Waukegan, Ill.; born in Spokane, Wash., Feb. 20, 1925; University of Michigan Medical School, Ann Arbor, Mich., 1948; served a rotating internship at the University of Michigan Hospital in Ann Arbor, followed by one year residencies in internal medicine and psychiatry at the same hospital; commissioned a lieutenant (jg) in the medical corps of the U. S. Naval Reserve in November, 1950, and reported for active duty at that time; at the time of his death was assigned to the medical department, administrative command, Naval Training Center, Great Lakes, Ill.; died at the Naval Hospital in Great Lakes, Ill., Oct. 14, aged 26, of bulbar poliomyelitis.

# GOVERNMENT SERVICES

## ARMY

**290 Reservists to Be Called in July.**—The Department of the Army announced March 13 that 290 officers of the Army Medical Service Reserve will be ordered into active service in July. Included in the group are 135 physicians, 135 dentists, and 20 veterinarians. Selection of officers to fill quotas will be made from those officers who, prior to their appointment in the organized reserve corps, were or would have been classified by the Selective Service System in priority 1 under the provisions of Public Law 779, 81st Congress.

The officers will be notified as soon as possible, but in no case will they be given less than 30 days to close out personal and business affairs, unless they wish to report earlier. Medical officers selected will be ordered into the active military service for a period of two years. The 290 medical officers will be drawn from the Army areas as follows: First Army, 60; Second Army, 33; Third Army, 37; Fourth Army, 28; Fifth Army, 56; Sixth Army, 58; U. S. Army, Pacific, 10; and U. S. Army, Caribbean, 8.

**Library Time Spent on Requests.**—During the four months ending with Jan. 31, the Army Medical Library employees spent a total of 33,673 hours in filling certain categories of requests received from civilians, government agencies, and the armed forces. Of this total, 2,863 hours were devoted to filling civilian requests, 1,456 to the armed forces requests, and 1,092 hours to government agencies requests. Of the 4,560 books loaned, 1,366 went to civilians, 2,051 to the armed forces, and 1,143 to government agencies.

The photoduplication service conducted by the library required a total of 23,702 hours to fill requests, of which 7,407 were spent on civilian requests, 14,309 for the armed forces, and 1,986 for government agencies. These figures include not only filming, editing, and processing time, but time required to verify references, take volumes from the shelves, carry them to and from the photoduplication laboratory, and replace them on the shelves. Even at that, it averages just over two minutes for each page copied.

## CIVIL DEFENSE

**Management of Burns Under Disaster Conditions.**—After experimental clinical trial, the subcommittee on burns of the National Research Council approved basic specifications for a standard burn dressing, and the Department of Defense and the Federal Civil Defense Administration adopted the National Research Council's recommendation. This new type cellulose pad burn dressing involves the principle of protecting the injured area from all kinds of trauma, including infection, in such a way as to create the most satisfactory conditions for healing. Since its usefulness is not limited to the treatment of burns, the dressing is also called a universal protective dressing; it can be used on all types of wounds, including lacerations, penetrating injuries, and compound fractures, with splints applied over the dressing; it can also be used as a compression dressing. Bids for the manufacture of the first 470,000 burn dressings were opened in January, and this quantity will go to the states participating in the federal-state matching program. This quantity is about 10% of the total number of burn dressings that may be contracted for in the fiscal year 1952, both for the matching and 100% federal stockpile programs. As quantities of these dressings are manufactured, some revisions or refinements of the specifications may become necessary.

In its news bulletin of Feb. 29, 1952, the Federal Civil Defense Administration states that for first-aid treatment of burns the Civil Defense Administration recommends application of a clean dry dressing such as old sheets, towels, or other clean, ironed material, which can be prepared in any household. Such a dressing protects the burned area, and by covering it, tends to relieve pain. In addition, it will not interfere with subsequent definitive therapy when the burned victim is treated at an aid station or hospital. No ointment or other topical medication should be used for surface treatment of cutaneous burns as a first-aid measure.

## PUBLIC HEALTH SERVICE

**Surgeon General Reappointed.**—Dr. Leonard A. Scheele will be sworn in as Surgeon General of the Public Health Service on April 6 for his second four-year term. Dr. Scheele's appointment was confirmed by the Senate after his nomination by President Truman had been unanimously recommended by the Senate Labor and Public Welfare Committee. His predecessor, Dr. Thomas Parran, served three terms, and Dr. Hugh S. Cumming, who preceded Dr. Parran, was Surgeon General for 16 years. Dr. Scheele, who is 44 years old, was the youngest Surgeon General in PHS history at the time of his original appointment in 1948.

**Illness Caused by Foods in 1950.**—For the first time in the 28-year recorded history of milk-borne diseases, in 1950, no outbreaks of typhoid fever in the United States were caused by milk, according to the Public Health Service. The 62 cases of all milk-borne diseases was the lowest number ever recorded. Of these, 54 were undifferentiated gastroenteritis and 8 undulant fever, none of which resulted in death. The number of outbreaks of water-borne disease in 1950 was the lowest since the beginning in 1938 of the reporting period. There were 15 outbreaks and 1,299 cases, most of them undifferentiated gastroenteritis. Seven cases of typhoid were traced to polluted water. For the first time in this period there were no deaths from any water-borne disease.

In contrast to the decline in milk and water-borne diseases, outbreaks of illness caused by other foods in 1950 were the second highest in the previous 12 years. The apparent increase probably indicates better reporting of outbreaks. The peak number of outbreaks occurred in 1949, when 367 were reported. Most of the 1950 cases were caused by food poisoning and gastroenteritis, with a large number resulting from paratyphoid infection (salmonellosis). Five deaths in 1950 were ascribed to food-borne illness, the lowest total recorded in the 12 year period. Two of these deaths resulted from botulism, two followed food poisoning, and one resulted from unknown causes.

**Microscopical Diagnosis of Malaria.**—The second edition of "A Manual for the Microscopical Diagnosis of Malaria in Man" is now available. The revision was prompted by the discovery by Shortt in 1948 of the tissue (exoerythrocytic) stages of human malaria parasites. The new edition gives a more complete history of the life cycle of the human malaria parasites by including material on Shortt's discovery. The work on avian and simian malaria parasites, which preceded the discoveries on the human parasites, has been carefully outlined, and reference made to the studies of Fairley, which had indicated the presence of some hidden phase of the parasite in man. The results of Shortt's earlier work on these exoerythrocytic states are outlined in some detail.

Much space is given to the making, handling, and staining of blood films and to species identification in both thin and thick blood films. A table on thick film characteristics of stages and species of the malaria parasites has been added. A simple method of enumeration of parasites is included. New color plates have been added to those of the three common species of malaria in both the thin and the thick film. Copies of this manual may be obtained for 40 cents by writing to Superintendent of Documents, Government Printing Office, Washington, D. C.

# FOREIGN LETTERS

## ARGENTINA

**Prophylaxis of Rabies.**—In recent months many cases of rabies were observed in humans as a result of the increasing number of dogs that were abandoned in the streets. Sanitary authorities of the city of Buenos Aires and the provinces of Buenos Aires and Cordoba were obliged to adopt severe measures. First, dogs that were not licensed were taken from the streets and killed. Secondly, the campaign for a yearly compulsory vaccination of dogs was intensified, and antirabies institutes were enlarged and improved in respect to accommodation, employees, and resources.

**International Congresses.**—The Sixth International Congress of Hematology will be held next September in the city of Mar del Plata, under the presidency of Dr. Alfredo Pavlovsky. The Interamerican Cardiological Congress will be held in Buenos Aires next September. Outstanding specialists from the United States are expected to attend both congresses.

**Chiropractic.**—Until now, treatment of diseases by means of chiropractic was not permitted in Argentina. Because of this, it was surprising to hear that a recent resolution had been passed by the Ministry of Public Health stating that, because 500 persons were successfully treated by Kotaro Nagashima and Dr. Berge, the treatment of some diseases by this method will be permitted.

## DENMARK

**Supersonic Therapy.**—Supersonic therapy has begun to excite interest in Denmark owing to reports in favor of it from other countries, Germany in particular, and owing also to its application to various diseases that are known for their refractoriness to older methods of treatment. The equipment is costly, and the technique requires skill and judgment, but these obstacles are no great check to its popularity, since the public is anxious to find a short cut to recovery. In a recent issue of the journal of the Danish Medical Association, *Ugeskrift for laeger,* [illegible] three articles on the subject, an editorial and two original articles dealing with hospital and private practice. The editorial stresses the need for caution with this new remedy. Apart from the high cost of this treatment, the harm it may do to a patient may be so insidious that it is not detected till too late. It may also harm the persons administering it.

The first original article is from a military hospital in Copenhagen, where the author, Dr. Holger Schledermann, has provided adequate controls. Since February, 1951, he has applied this treatment to three diseases, which are easily diagnosed, tend to last many days, and are likely to be refractory to treatment of any kind. They were (1) periostosis of the tibia, (2) peritendinitis of the common head of the extensor brachii, and (3) peritendinitis of Achilles tendon. The patients who served as controls underwent older methods of treatment, such as massage and thermal treatment, for the same type of lesion. The results of supersonic therapy were, in all three groups, inferior to those obtained with the older remedies. What was perhaps most disquieting was the development of a fracture of the tibia in two cases during treatment—an accident hitherto not observed by Dr. Schledermann in connection with the older methods of treatment. He adds that experiments on animals have shown that supersonic therapy actually can fracture bones.

The other original article, by Dr. Sven Dahl, is concerned with a mixed group of cases. His first 98 cases include such different conditions as rupture of a muscle, bronchial asthma, and varicose ulcers, as well as "obscure inflammations in hands and fingers." He mentions no controls, and he refers to the improvement achieved in many cases as being almost miraculous. He recommends this treatment to private practitioners whose patients cannot get to a hospital.

**The Refsnæs Coast Hospital Then and Now.**—In considering the changes that have taken place in the character of the diseases of patients treated at a typical coast hospital in Denmark during the last 60 years, Dr. Svend Heinild found that the diseases treated at the Refsnæs Coast Hospital in 1890 were very different from those treated in 1950. This hospital was opened in 1875. Fifteen years later about 90% of the cases were tuberculous, and tuberculosis was often associated with other serious infections, such as gastroenteritis, diphtheria, and scarlatina. In November, 1948, a special department was established at Refsnæs Hospital for the care of nontuberculous children. This department is in close touch with the children's out-patient department of Finsen Institute, through which some 2,000 patients up to the age of 15 pass each year. From Finsen Institute in Copenhagen some 300 patients between the ages of 2 and 15 years are sent to Refsnæs Coast Hospital each year. Between one-third and one-half of these children show none of the organic lesions so characteristic of a coast hospital clientele 60 years ago. Many of these children are convalescing after having some acute infection of the upper respiratory tract. They suffer from asthenia, anemia, and lassitude; they are nervous and underweight; and less than 10% of them are spontaneously tuberculin-positive. By spontaneous positivity is meant the reaction that does not depend on BCG vaccination.

In seeking to explain why this profound change has come over the Refsnæs Coast Hospital clientele during the past 60 years, Dr. Heinild draws a picture of a typical Danish home then and now. The Danish home 60 years ago may have produced much organic disease, but it did not produce the large group of nervous and debilitated children, which reflects the state of the present-day home. Formerly children grew up in homes in which the mother was an integral part. Then, and for many previous centuries, they learned in a family circle to behave and to earn a living, closely associating wage-earning with living. At the present time the mother is often a wage-earner outside her home and is incapable of giving her offspring the care they need. Dr. Heinild attaches much more importance to this explanation than to the one that gives housing problems most of the blame. Indeed, bad housing was an important causative factor in only about 2 to 3% of the cases at the Refsnæs Coast Hospital.

**Centenary of Ophthalmologist J. Bjerrum.**—The Danish ophthalmologist Professor Bjerrum was born Dec. 26, 1851. He died on July 2, 1920, after a distinguished career, which has given him an honorable place in textbooks on ophthalmology outside as well as inside of Denmark. Celebrations of his centenary have included an appreciative survey of his career by Dr. Holger Ehlers. After the annexation of Schleswig-Holstein by Germany, Bjerrum was sent to Denmark to complete his education. After qualifying as a physician in 1876, he worked at an eye hospital in Havnegade, where he undertook painstaking research into the perception of light and form, a subject with which his doctoral thesis was concerned. In addition to his two books on the examination of the eyes and the use of the ophthalmoscope, he published a long series of articles on glaucoma and photophobia. In the opinion of Dr. Ehlers, Bjerrum's chief claim to fame depends on his investigations in the field of vision. His observation of small defects in connection with glaucoma was at first greeted with considerable skepticism abroad, but the clinical importance of his discovery to the diagnosis of glaucoma was ultimately admitted by his critics.

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The items in these letters are contributed by regular correspondents in the various foreign countries.

## ITALY

**Studies on Diabetes Mellitus.**—Papers on the subject of diabetes mellitus have been published in Italy recently by Ernst Boris Chain, Nobel prize winner, Professor Gigon, director of the University of Basel Medical Clinic (Switzerland), and by Prof. L. Antognetti, from the University of Genoa. Mrs. Anna Beloff Chain, wife of the Nobel prize winner, Professor Chain, Prof. Daniele Bovet, who at the Institute Pasteur in Paris recognized the active therapeutic nucleus in the sulfonamide molecule, and Professor Pocchiari reported on the metabolism of glucose 1-phosphate in healthy and diabetic rabbits. Professors Chain and Bovet have been working in Rome at the head of the Laboratories of Biological and Therapeutic Chemistry of the Higher Institute of Health, of which Prof. Domenico Marotta is director.

Soon after the discovery of insulin, it was proved that the amount of inorganic phosphorus present in the blood decreases in normal animals after one injection of insulin and glucose, and it was suggested that insulin exerts its antiglycemic action by influencing the phosphorylation of carbohydrates and their derivatives. To test this assumption, Chain and his co-workers studied various intermediary "phosphorylates" of glucose metabolism in healthy animals and in alloxan-diabetic animals. These studies were begun on glucose 1-phosphate, considered one of the first derivatives of glucose after it has entered the cell. It was found that glucose 1-phosphate intravenously injected in rabbits in doses of 1.5 gm. per kilogram of body weight quickly leaves the blood and enters the cellular tissues of the healthy and the alloxan-diabetic rabbits. The velocity with which it disappears is the same for both groups of rabbits, and in both groups 30% of the glucose 1-phosphate is excreted in the urine. Glucose, however, disappears quickly from the blood of healthy rabbits but remains in circulation for a prolonged period of time in the alloxan-diabetic rabbits. It is, therefore, evident that glucose can enter the cells of the tissue of diabetic rabbits only in the form of glucose 1-phosphate. By inducing phosphorylation of carbohydrates, insulin renders them able to penetrate in the cells, and the glucose that circulates in the blood decreases and disappears.

These researches were contemporaneous with the clinical observations of Drs. J. Bornstein and R. D. Lawrence, who concluded that the blood plasma of some diabetics contains an "anti-insulin" factor. It is found in the blood plasma of diabetics who are thin, susceptible to ketosis, and generally young in age. If their plasma is injected in rats, the rats will not react to the action of the insulin that is administered to them. On the contrary, in diabetics who are fat, plethoric, and middle-aged this factor is not present in the blood, and rats in which blood plasma of these diabetics is injected do not become "insensitive" to insulin. Houssay and his co-workers asserted that there are insulins in which it is possible to find the anti-insulin factor, which can even be "isolated." On the basis of the studies made by Chain, Bornstein and Lawrence, and Houssay and his co-workers, one may conclude that some insulins cannot perform phosphorylation of glucose in a satisfactory way, but that, on the contrary, they arrest it.

On the other hand, there are diabetics whose sugar in the blood decreases quickly after receiving a small dose of insulin or even after a slight modification of diet, while there are others (young and thin) in whom even high doses of insulin never make the amount of glucose decrease. For this reason some physicians in Scandinavia prefer to keep diabetic children on an unrestricted diet and to give them massive doses of insulin, because there is an "insulin-resistance" that a change in diet does not affect.

*Glucose in Diabetes.*—Professor Gigon, the specialist in diabetes from Switzerland, director of the University of Basel Medical Clinic, reported on the pathogenesis of diabetes and discussed in particular carbohydrate metabolism in man. Glucose causes in a healthy peson, 10 to 12 hours after the last meal, an increased production of carbon dioxide. This increase (6 to 7 gm. for each 50 gm. of glucose) is, up to a certain limit (about 150 gm. of glucose), proportional to the ingested quantity of glucose. Beyond this limit, carbon dioxide does not increase. Professor Gigon considers this the maximum physiological limit of assimilation of glucose. If this limit is surpassed glycosuria may occur. According to Professor Gigon, small meals are preferable to large meals for a diabetic. The various carbohydrates do not have the same action: 20 gm. of bread do not have the same effect as 20 gm. of rice or oats. Rice is always less tolerated. Potatoes are, in general, more tolerated than farinaceous foods (noodles). Insulin is not always necessary. He considers minimum doses of insulin to be preferable. He attributes great importance to oats. A three-day diet of oats decreases the amount of sugar in the blood and influences even the precomatose condition. Abuse of insulin is always dangerous. He thinks that potassium salts help the production of glycogen in the liver and are, therefore, useful for the diabetic in that they withdraw circulating glucose.

*Effect of Cocarboxylase.*—At the 52nd Convention of the Italian Society of Internal Medicine Prof. L. Antognetti from Genoa reported on the action of cocarboxylase in diabetes. When the organism is unable to get the element that supplies the reserve of adenosine triphosphate (ATP) it appeals to other sources. This element is glucose. When it cannot be utilized because it does not undergo adequate phosphorylation and continues to circulate in the blood, the organism appeals to fats and proteins, and it must then utilize pyruvic acid to obtain the other source of energy supply. A substance that presides over the utilization of pyruvic acid is cocarboxylase, which is a part of thiamine (vitamin B-1). This explains the therapeutic advantage of administration of appropriate vitamins in the treatment of diabetes.

## LONDON

**Death of the King.**—The peoples of the United Kingdom and of the whole British Commonwealth were plunged into deep sorrow by the announcement on Feb. 6 that His Majesty King George VI had died. There was a deep sense of personal loss at his passing among all persons in every class of the community. After a successful recovery from the major operation of pneumonectomy done last September, he succumbed to the vascular disease that he had had for several years. His end was peaceful and occurred while he slept. His last day was spent with his friends at his country home in Sandringham, Norfolk.

When he was unexpectedly called on to occupy the throne 15 years ago, he had to fight to overcome a speech impediment that caused him much difficulty in public speaking; later, poor circulation in one leg and arduous duties placed a great strain on his body and mind. In spite of these disabilities and the troubling times of war and political upheaval that the country underwent during his reign, the king carried out his duties, as one journal expresses it, "almost faultlessly."

After World War I, he became an undergraduate student at Cambridge University and developed an interest in industrial affairs. At that time he was the Duke of York and a young man of 24. He became president of the Industrial Welfare Society, an organization formed with the idea of improving relations between employers and workers. In the following five years he visited no less than 150 factories throughout the country, explaining employers and employees to each other. This was the first time that a member of the royal family had formed a personal link with the great masses employed in many industries, and his efforts, including the emphasis he placed on physical training in industry, were of great service to the country. He also instituted summer camps for boys, half of whom came from private schools and half from industrial districts. Over a period of some 15 years, 7,000 boys shared together the work and fun of camp life. During this period he was also closely associated with the British Empire Cancer Campaign and presided over its annual meetings on many occasions. He gave unstintingly of his time to many other medical and scientific institutions. One of his often quoted remarks, made in 1933 when he inaugurated the International Paediatric Congress, the first to be held in Great Britain, was "take care of the young and the country will take care of itself." He had been the patron of the British Medical Association from shortly after the time of his accession to the throne until his death.

During his lifetime, the king was no stranger to surgical treatment. Before he became king, he had, as Duke of

public duties to perform, and even then suffere being ill many times. When a naval cadet at Osborne, he had a severe attack of pneumonia. In 1914, just after the outbreak of war, he was operated on for appendicitis. Later, having seen active service with the Royal Navy in the Battle of Jutland, he had a period of serious ill health, and, in 1917, he had an operation for duodenal ulcer. In November, 1948, he submitted to a sympathectomy that was done to improve the circulation in one leg; fortunately, the result of this operation enabled him to lead a fairly active life. Finally, he had an attack of virus pneumonia that failed to subside as expected. The king remained chronically ill, and, after investigation, it was decided that his right lung should be removed. Although it has not been finally announced what the actual cause of his lung lesion was, most physicians are of the opinion that the structural changes in his lung, as announced in the first bulletin on Sept. 18, 1951, were those of cancer of the lung.

For many years he had been the hardest working and most beloved man in the country, and all of Britain is unanimous in acclaiming his courage for the way he performed his strenuous and difficult duties in spite of personal ill health. His courage and steadfastness, aided in no small measure by his wife, set a high standard for both public and private life. He has left the throne more firmly implanted than ever before in the British constitution and in the hearts and affections of the people. In a leading article, *The Lancet* says, "To those who recall the intellectual and political climate of the early part of the century it may well seem strange that the Monarchy in this country should not only have survived but still be gaining in significance. Yet it is clearly doing so. The proclamation of Queen Elizabeth gives her the new title of Head of the Commonwealth; and today it is the Crown, almost alone, that holds together a great group of self-governing peoples of various race. More surprisingly, our Royal Family form a bond with a great many people in other countries who have come to share our interest in them."

**Memorial to the Founder of Scientific Surgery.**—On Feb. 14, at the famous old church of St. Martin-in-the-Fields, Trafalgar square, London, a memorial plaque was unveiled in the crypt, recording the fact that the body of John Hunter had lain in the vaults of the church from 1793 to 1859, when it was transferred to Westminster Abbey. There was a general thanksgiving service and prayers, following which the president of the Royal College of Surgeons, Sir Cecil Wakeley, read the lesson. The tablet was unveiled by Sir Henry Dale and was dedicated by the dean of Westminster Abbey. On returning to the church, a commemorative address was given by Sir Gordon Gordon-Taylor, a surgeon, who briefly outlined the events associated with the discovery and identification of John Hunter's remains nearly 100 years ago. At a dinner held by the Hunterian Society in 1847, the Rev. Mr. Buckland, dean of Westminster Abbey and father of Dr. Frank Buckland, lamented the fact that the medical profession had never erected a monument to John Hunter. The dean himself suggested that it would be suitable if a monument was placed in Westminster Abbey. Eleven years later, . Frank Buckland, then an army surgeon in the Second Life a ds read an order in council which required the vaults of Martin's Church to be cleared of their coffins. He made sure old records that John Hunter was actually buried there and commenced the grim task of finding Hunter's coffin among more than 3,000 which lay in the charnel house. It proved to be the second to the last coffin that he opened. The remains were later interred in Westminster Abbey between the graves of Ben Jonson and Charles Lyell. The junior vice-president of the Royal College of Surgeons at that time, J. F. South, wrote the words that appear on ornamental brass over Hunter's remains. Dr. South's words undoubtedly still express the views of surgeons nearly seventy years after his death: "A gifted interpreter of the divine power and wisdom at work in the laws of organic life . . . the founder of scientific surgery."

Sir Gordon Gordon-Taylor, after paying homage to John Hunter, spoke of Dr. Frank Buckland, whose memory is also perpetuated by the tablet. He described him as "a somewhat erratic surgeon-anatomist." He was a great investigator of natural history and had formed a collection of fish, which he left to the Science Museum in South Kensington. His work is carried on by the Buckland Research Foundation, whose object is to tabulate recent knowledge relating to important food fish. Gordon-Taylor also spoke of the recently deceased Prof. George Grey-Turner, whose zeal and enthusiasm had done so much towards having this plaque placed in the church. Although there were many differences between the three men, Hunter, Buckland, and Grey-Turner, each was a great collector and an implicit believer in the value of the museum. All three showed constant industry and died while carrying on their beloved work. The life and work of these men will far outlast any memorial. Sir Gordon concluded with an apt quotation from Thucydides: "The whole earth is the tomb of great men."

**Visiting in Children's Hospitals.**—An interesting experiment in visiting in children's hospitals, which is being tried out at the Hospital for Sick Children, Great Ormond Street, is described by Prof. Alan Moncrieff and a ward sister in the *British Medical Journal*. Mothers are encouraged to visit their children daily between 5 and 6 p. m. During their visit, they do in the hospital "the things they would do for their children at home," e. g., give them their suppers, read or play with them, clean their teeth, hear prayers, and tuck them in bed for the night. Should the child show signs of being upset when the mother leaves, she is asked to stay until the child is asleep. Children who are not visited are attended to by mothers of other children in the ward. Also there is in the hospital a nursing mother who i breast feeding her infant, and arrangements have been made for mothers of artificially fed babies to come into the hospita for a day or two at a time before the baby is discharged, s that they can learn how to care for their infants at home.

The main advantage of the plans for mothers to care for thei children in the hospital is the maintaining of the mother-chil relationship. There is no question of abnormal possessivenes developing on the part of the nursing staff. The mothers benef from having something to do while visiting, rather than sittin aimlessly at the child's bedside. The child has something to loo forward to every day. "Even the toddler can understand to-da and to-morrow." The practical disadvantage is the amount o time it takes up on the part of the mother, especially if she live a considerable distance from the hospital. On the other hand mothers, children, and nurses all like the scheme, but some form of follow-up and comparison with other methods would b desirable.

## SWEDEN

**Alcohol and Longevity.**—Since Raymond Pearl's study of alco hol and longevity was published, in 1926, other attempts hav been made to assess the influence of alcohol on the duration o life. In Sweden, Dr. Gunnar Dahlberg of Stockholm has renewe the attack on this problem by means of a statistical analysis o the death rates among persons addicted to alcohol and "normal persons of the same age and sex. In the former category, h includes the 2,365 men, who, between 1916 and 1930, wer notified to the Temperance Board, an official body authorized t deal with alcoholics either by means of a warning, supervisio or, in extreme cases, internment. Serving as a control group wa the general population of Stockholm, including the alcoholic One of Dr. Dahlberg's statistical tables deals with what he cal the "cumulative death risk" for every 100 men in the two group In both groups, the men had reached the age of 25 during th period 1916 to 1930. This table shows that, between the ages o 30 and 55, the "cumulative death risk" was much greater for th alcoholics than for the controls. At the age of 40, these risks wer 12.7 for the alcoholics and 6.6 for the nonalcoholics. Afte the age of 55, this difference between the two groups becam gradually smaller until it disappeared completely. This investiga tion also showed a comparatively high death rate due to suicid and tuberculosis among alcoholics. Dr. Dahlberg stresses th difficulties inherent in an investigation of this kind and the war of accurate information concerning the indirect action of alcoh as a cause of premature death. A full account of this investiga tion, with tables, is published in *Svenska Läkartidningen* fo Jan. 11, 1952.

# CORRESPONDENCE

## BONE SARCOMA REGISTRY OF AMERICAN COLLEGE OF SURGEONS

*To the Editor:*—For over 20 years the American College of Surgeons has maintained the Registry of Bone Sarcoma. This collection of osseous neoplasms was originated by the late Ernest A. Codman of Boston and later was expanded into a comprehensive repository at the college under the direction of the late Bowman C. Crowell. The regents of the college reluctantly have decided that it is no longer feasible to maintain the registry as a function of the college. On the advice of their cancer committee, the regents have instructed that the registry be placed on permanent loan in a teaching institution, where its potential value and further development may be realized to a maximum degree. This communication is an invitation to any interested medical schools or other specialized teaching facilities to submit requests for acquisition of the Registry of Bone Sarcoma.

Decision on disposition of the registry to an institution will be made on the basis of qualified personnel and adequate facilities for further development and proposed plans for its utilization in research and as a study collection. The college requests that the institution that receives the registry assume all responsibility for its packing and transportation.

The registry contains some 2,400 cases, all of which have microscopic sections and most of them good follow-up information. A great number have paraffin blocks, a few gross specimens and, in some, the original roentgenograms, although in some instances only photographs of the radiographs are available. Since World War II a competent pathologist brought the collection up-to-date, including many cases submitted during the war years. The collection is completely indexed and cross filed. The content of the registry is, of course, completely representative of neoplasms in bone.

Representatives of institutions interested in the possibility of acquiring the Registry of Bone Sarcoma are requested to write to the chairman of the Committee on Registry of Bone Sarcoma, in care of the American College of Surgeons, 40 E. Erie St., Chicago 11, Ill.

LAUREN V. ACKERMAN, M.D.
HOWARD E. SNYDER, M.D.
IAN MACDONALD, M.D., Chairman.
Committee on Registry of Bone
Sarcoma, American College of
Surgeons.

## EMPLOYMENT OF BUS OPERATORS WITH MYOCARDIAL DAMAGE

*To the Editor:*—I am interested in a policy for the rehabilitation and employment of young adult and middle-aged bus and streetcar operators who have completely recovered from coronary thrombosis with myocardial infarction. In spite of the fact that it appears to be an accepted policy for companies engaged in transportation to grant permanent disability pensions when such a plan exists to employes in this category, it is my feeling that this policy should be modified for the reasons given below. My personal clinical experience is that the majority of patients recovering from their initial coronary attack can return to an occupation not associated with undue physical strain or mental stress. We have many cases among our records of men in all walks of life, including farmers, industrial workers, professional men, and executives, who are leading perfectly normal lives and experiencing no symptoms of difficulty. When they do, we naturally advise immediate attenuation if not cessation of duties.

It is recognized that not too infrequently coronary occlusion with infarction takes place without knowledge of the patient or even of his physician, and the heart lesion heals spontaneously. Postmortem studies confirm this clinical observation, inasmuch as many healed infarctions are seen at autopsy for which there has been no clinical history of an attack during the patient's lifetime. Therefore, coronary occlusion is a more frequent incident than is recognized, and is often passed over without any lessening in the person's activities. By this same token, an infarction that has been detected should not necessarily render the patient disabled for life, since careful protective treatment can be given.

The records of the St. Louis Public Service Company show that no serious accident has ever resulted from employment of such persons, even with sudden death of a bus or streetcar operator from a coronary attack. Records show that there has not been a single instance when these persons have not been able to bring their vehicle to a stop or draw up to the curb before losing consciousness.

From a psychological standpoint it is far better for the patient's morale and mental tranquillity to be able to resume his occupational pursuits when this is justified and indicated.

We do advise exception to this policy under the following circumstances: (*a*) when the attack has been unusually severe and was accompanied by a considerable degree of protracted shock and evidence of an extensive involvement of the heart muscle from the infarction developed in the wake of a coronary artery occlusion; (*b*) in the presence of enlargement of the heart to a degree designated as greater than grade 1 to 2; (*c*) when there are significant and serious complications, such as marked hypertension, diabetes sufficient to indicate use of insulin, gross uncorrected overweight, and certain psychological factors, such as nervous or emotional instability, frank cardiac anxiety (that is, heart consciousness), or in the presence of unrelenting fear; and (*d*) in cases in which there is electrocardiographic evidence of serious heart block, arrhythmia, severe myocardial damage, or roentgenographic evidence suggesting a bulging of the myocardium at the site of the infarction.

O. P. J. FALK, M.D.
St. Louis University School of Medicine
St. Louis.

## COSTS OF FEDERAL HEALTH PROGRAMS

*To the Editor:*—In the Washington News of THE JOURNAL, Feb. 9, 1952, page 16, appears a table entitled "Costs of Federal Health Programs," in which the National Science Foundation is listed. The associated fiscal items are given as $3,500,000 for the Congressional Appropriation for fiscal 1952 and $15,000,000 for the President's Budget Request for fiscal 1953.

These figures are correct in that they represent the foundation's total 1952 appropriation and 1953 budget request. They are completely inaccurate, however, in the context, since only a fraction of our total budget for research support and fellowships can properly be allocated to medical sciences or even to biological and medical sciences. During fiscal 1952 perhaps 10%, or $350,000, of our total appropriation can properly be assigned to medicine. Corresponding estimates for fiscal 1953 are not available.

ROBERT TUMBLESON, Chief
Office of Scientific Information
National Science Foundation
Washington 25, D. C.

## GASTROINTESTINAL ALLERGY SIMULATING REGIONAL GASTROENTERITIS

*To the Editor:*—Referring to the interesting paper in THE JOURNAL by Blumstein and Johnson (Gastrointestinal Allergy Simulating Regional Enteritis, 147:1441 [Dec. 8] 1951), I would like to mention an article I wrote in 1933 entitled "Allergic Symptoms Due to Foodstuffs (*Deut. med. Wchnschr.* 59:1281, 1933). This case has also found its way into textbooks. Urbach in his allergy text (New York, Grune & Stratton, Inc., 1943) writes: "Gutmann's case is especially striking: the patient underwent seven laparotomies within six years because of very severe intestinal spasm simulating an ileus, the true cause of the condition was finally found to be hypersensitivity to yeast in beer." The finding of an allergy to yeast as the cause of the last attack saved the patient from another operation after the spasm had been relieved with epinephrine and ephedrine.

M. [illegible]MANN, M.D.
[illegible] Israel.

# BUREAU OF LEGAL MEDICINE AND LEGISLATION

## MEDICOLEGAL ABSTRACTS

**Workmen's Compensation Acts: Employee's Right to Sue for Malpractice.**—The plaintiff sued to recover damages for the alleged negligence of the defendant physician while treating him for accidental injuries received while in the employment of the Virginia Electric & Power Company. From a judgment in favor of the defendant physician, the plaintiff appealed to the Supreme Court of Appeals of Virginia.

The sole question, said the Supreme Court of Appeals, is whether an employee who has been injured in an accident arising out of and in the course of his employment and has been awarded and has accepted the benefits provided under the workmen's compensation act is thereby barred from maintaining an action against a physician or surgeon for malpractice in treating the injuries resulting from the accident. The workmen's compensation act provides: "The pecuniary liability of the employer for medical, surgical and hospital service herein required when ordered by the Commission shall be limited to such charges as prevail in the same community for similar treatment of injured persons of a like standard of living when such treatment is paid for by the injured person and the employer shall not be liable in damages for malpractice by a physician or surgeon furnished by him pursuant to the provisions of the preceding section, but the consequences of such malpractice shall be deemed part of the injury resulting from the accident and shall be compensated for as such."

The defendant first contended that the language, ". . . but the consequences of any such malpractice shall be deemed part of the injury resulting from the accident and shall be compensated for as such," prohibited an action by an employee against the physician, because the acceptance of compensation for both the original injury and its aggravation constituted the limit of compensation to which an employee was entitled for his full injury. The quoted language, said the court, merely affirms the common law with respect to liability for the consequences of an aggravation of an original injury. It gives compensation to the employee in accord with the purpose and limitation of the workmen's compensation act. The employer is relieved from liability in damages for malpractice by the physician or surgeon, but there is no provision for the benefit of a third party wrongdoer, whether he be a negligent physician or other person. The physician is not a party to the settlement for compensation required to be made to the employee. The employer pays from the compensation fund, in which the physician has no interest, the amount of his liability under his statutory contractual agreement with the employee. The employee accepts the payment in full satisfaction of the amount due from his employer, not in satisfaction of the amount which covers the actual damages sustained.

The defendant next argued that the treatment of compensatory injuries is a part of the employer's business, because he is compelled to furnish medical attention and made liable for the consequences of malpractice, and that hence the attending physician or surgeon falls within the category of "those conducting his (the employer's) business." There is no merit in this contention, said the Supreme Court of Appeal. The pleadings allege that the aggravation of the plaintiff's injury occurred at a place remote from the scene and course of his employment and was caused by a physician who was charged with exercising his own discretion and method in the treatment of the injury. The employer was not engaged in the business or profession of practicing medicine or surgery. The physician, on the other hand, was not engaged in the business pursuit of the employer but in his own business or calling. He was an independent contractor and not a fellow servant of the employee. He was a third party, a party conducting his own business, a business other than that of the employer or the employee.

Finally, the defendant contended that, although the act makes no provision permitting or prohibiting an action by an injured employee against a negligent fellow employee, such actions have been barred because such injuries are contemplated as being chargeable as an expense which the industry should bear. This contention falls if the employer liable for the consequences of aggravation by malpractice has the same right of subrogation that he has when he has paid compensation for original injuries sustained by his employee by reason of a third party's wrongdoing. The defendant's contention would deprive the employer of his right to subrogation and confer on the physician or surgeon a benefit to which he is not entitled. To so construe the act would be to prevent reimbursement of the employer when he is compelled to pay compensation as a direct result of the negligence of another. This would require an employer, without fault, to respond in compensation to an injured employee, while a physician guilty of malpractice would be completely protected by the money paid by the blameless subscriber to the fund. The physician does not share the burdens of the act imposed on the employer and is entitled to none of its benfits. It would seem unreasonable to assume that the legislature intended to save a class of wrongdoers unrelated to the compen sation scheme from the liability which the law had theretofor imposed on them or that independent professions by the fac of business contact with the employer should be relieved o responsibility for mistake or neglect resulting in secondary afflic tion. Such a holding, said the court, would leave the injure employee without adequate relief, and would present a situatio in contravention of the purposes of the act.

Accordingly the action of the trial court in favor of the de fendant physician was reversed and the cause remanded for tria *Fauver v. Bell, 65 S.E. (2d) 575 (Virginia, 1951).*

# MEDICAL MOTION PICTURES

**There Is No Substitute:** 16 mm., color, sound, showing time 21 minute Produced in 1951 by Moss Film Productions for Cutter Laboratories ar the American National Red Cross. Procurable on loan or purchase fro United World Films, Inc., 1445 Park Ave, New York 29.

This film describes in detail the conditions prevailing in Re Cross centers with the friendly atmosphere and thoroughl supervised medical attention given to donors. The spectator go along with the donor from stage to stage. He watches how car fully records are kept and how the donor's health is protected b testing his blood, taking his blood pressure, and recording h history. He gets a close view of the bleeding. He sees the admi istration of refreshments before and after; the tests done on th blood after its removal, especially blood grouping; and the pr duction of plasma, including separation, irradiation with ult violet rays, sterility tests, and tests for pyrogens.

All this is done very clearly and reassuringly. One cannot b carry away the impression that all the procedures have bee organized not only to secure a perfect product for the eventu recipient but also to protect the health and interests of the dono One cannot help but wonder why it is necessary to propaga dize in view of the obvious benefit that members of the milita forces as well as civilians derive from blood, a substance f which there is no substitute. The answer is that many peop do not have enough imagination to see the benefits and necessi unless shown in a practical way as is done in this film.

This motion picture is meant mainly for lay groups. Phys cians and hospital personnel will be interested in becoming a quainted with its availability and scope. It may serve as a bas for a talk on the subject, in which case it would be particular effective. The opening scene depicting the explosion of an atom bomb was done extremely well. The photography and anim tion are excellent, and the picture is well organized.

# MEDICAL LITERATURE ABSTRACTS

## UNITED STATES

### A. M. A. Arch. Internal Medicine, Chicago

89:1-170 (Jan.) 1952

Endemic Infectious Hepatitis in an Infants' Orphanage: I. Epidemiologic Studies in Student Nurses. R. B. Capps, A. M. Bennett and J. Stokes Jr. —p. 6.

Incidence of Hepatitis Among Narcotic Addicts in the Harlem Hospital, New York. A. Altschul, P. D. Foster, S. S. Paley and L. Turner. —p. 24.

*Use of Corticotropin and Cortisone in Acute Homologous Serum Hepatitis. H. Rifkin, L. J. Marks, D. J. Hammerman and others.—p. 32.

Thromboembolic Pulmonary Vascular Sclerosis: Report of Case Following Pregnancy and of Case Associated with Cryoglobulinemia. E. E. Muirhead, P. O'B. Montgomery and C. E. Gordon.—p. 41.

*Use of Quinidine in Treatment of Chronic Auricular Fibrillation: Results Obtained in Series of One Hundred Fifty-Five Patients. E. H. Yount, M. Rosenblum and R. L. McMillan.—p. 63.

Roentgen Aspects of Pulmonary Arteriovenous Fistula. W. B. Seaman and A. Goldman.—p. 70.

Late Lymphatic Leukemia Complicating Hypersplenic Syndrome. H. A. Cochrane and L. Gross.—p. 82.

Infections with Pseudomonas Aeruginosa Treated with Polymyxin B. E. Jawetz.—p. 90.

Problems of Cation-Exchange-Resin Therapy. I. S. Friedman.—p. 99.

*Geotrichum Septicemia. R. A. Bendove and B. I. Ashe.—p. 107.

New Symptomatic Treatment for Acute Intermittent Porphyria. W. H. Wehrmacher.—p. 111.

Infectious Diseases: Seventeenth Annual Review of Significant Publications. H. A. Reimann.—p. 115.

**Corticotropin and Cortisone in Serum Hepatitis.**—Four patients with acute homologous serum hepatitis were treated with either corticotropin or cortisone. Defervescence and symptomatic relief occurred promptly in each case. In two instances there was clinical relapse following discontinuation of therapy, but on reinstitution of the medication there was a rapid remission. Although the results in four cases are not statistically significant, these patients were rapidly growing worse in spite of fair food intake and parenteral administration of vitamins and liver extract and they showed a remarkable clinical change following administration of corticotropin. Liver function studies disclosed a definite improvement. This is in marked contrast to the persistent elevation of the thymol turbidity and cephalin flocculation reactions seen in many patients long after they have shown clinical improvement with the usual therapeutic regimen. The exact mode of action of corticotropin in acute hepatitis is difficult to ascertain, but possibly it acts by some readjustment of the carbohydrate and protein metabolism. Recent experiments on dietary necrotic liver degeneration in rats indicate that lack of glyconeogenesis is an essential factor. Corticotropin and cortisone are known to be powerful stimulating agents of glycogen formation in the liver. The authors are aware of the hazards of corticotropin therapy in liver disease, namely, increased fluid retention, increased coagulability of the blood, and the possible development of portal vein thrombosis. All these complications, however, have also occurred in patients with chronic liver disease.

**Quinidine in Chronic Auricular Fibrillation.**—Auricular fibrillation has an adverse effect on circulatory dynamics, and continuation of this rhythm in an already failing heart is detrimental. This fact, aside from the distress that palpitation causes, led to attempts to restore normal sinus rhythm. Although many factors have been cited as contraindications to quinidine, Yount and associates feel that only a history of severe reaction to the drug should prevent its use. They studied the plasma concentration of quinidine in 155 patients treated with the drug. The chronic auricular fibrillation was caused by arteriosclerotic heart disease or rheumatic heart disease, and in a few patients by thyrotoxicosis or miscellaneous conditions. Sinus rhythm was reestablished in 119 patients (76%). If only those are counted who received an adequate therapeutic trial, it may be said that normal rhythm was restored in 86%. This was accomplished in an average of six days with a mean dose of 0.42 gm. every four hours and a mean plasma quinidine concentration of 9.1 mg. per liter at the time of reversion. The duration of fibrillation and the severity of the heart disease did not influence the results of treatment with quinidine. The patients of the oldest age group (70 to 86) responded most readily and to the smallest doses. The only disease that appeared to affect the response to quinidine therapy was thyrotoxicosis; in patients with this condition restoration of normal rhythm was difficult until the basic disorder was brought under control. The omission of quinidine after restoration of a normal sinus rhythm may be followed by recurrence of auricular fibrillation. Consequently, most of the patients were given maintenance doses. The dosage schedule required for restoration of a normal rhythm was generally continued for 24 to 48 hours after reversion, and then the same dose was given every six hours rather than every four hours. If the normal rhythm persisted, further reduction in the individual dose was attempted.

**Geotrichum Septicemia.**—A few cases of Geotrichum infection of the bronchopulmonary system have been described, but, as far as these authors could ascertain, no case of septicemia or mycethemia due to Geotrichum has ever been recorded. They observed Geotrichum mycethemia in a diabetic man 79 years of age. Neomycin seemed to be the only therapeutic agent which checked the patient's fever and downhill course; its use rendered his blood sterile after 12 days of treatment. The Geotrichum was still found occasionally in the sputum, but there were no clinical manifestations of infection. Deafness, which resulted from the neomycin therapy, persisted.

### A. M. A. Arch. Ophthalmology, Chicago

47:1-120 (Jan.) 1952

*Role of Heredity in Etiology and Treatment of Strabismus. A. Schlossman and B. S. Priestley.—p. 1.

Abstract of Paper: Further Efforts to Influence X-Ray Cataract by Chemical Agents. L. von Sallmann.—p. 21.

Monocular Diplopia (Binocular Triplopia) in Concomitant Strabismus. H. M. Burian and N. M. Capobianco.—p. 23.

Faulty Depth Perception Caused by Cyclotorsion. P. A. Cibis.—p. 31.

Experimental Study of Optokinetic Responses. J. W. Henderson and E. C. Crosby.—p. 43.

Clinical and Pathological Characteristics of Radiation Cataract. D. G. Cogan, D. D. Donaldson and A. B. Reese.—p. 55.

Nonsurgical Repair of Strictures of Lacrimal Drainage System. E. R. Veirs.—p. 71.

Note on Postoperative Management of Retinal Detachment. J. W. Jervey. —p. 76.

Carcinoma of Bulbar Conjunctiva Following Cataract Extraction: Report of Case. D. Oliver and W. Roberts.—p. 78.

Penetrating Orbital Wound with Intracranial Complications. R. C. Schneider and J. W. Henderson.—p. 81.

Papilledema Associated with Increased Intracranial Pressure in Addison's Disease. F. B. Walsh.—p. 86.

Lids, Lacrimal Apparatus, and Conjunctiva: Review of Recent Literature. J. H. Allen.—p. 87.

**Role of Heredity in Strabismus.**—Of 158 patients with strabismus observed in the Department of Motor Anomalies of the New York Eye and Ear Infirmary, 75 (47.5%) belonged to families with two or more members affected with squint. Of the 158 patients, 139 had esotropia and 19 had exotropia. Of the 139 with esotropia, 68 (48.9%) had a family history of the dis-

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Titles marked with an asterisk (*) are abstracted.

order, and of the 19 with exotropia, 7 (36.8%) had a family history of the disease. Eighty-eight family trees were studied, and the authors were able to examine two or more members with strabismus in 58 families. The relationship within the families, refractive errors, corrected visual acuity, type and amount of squint, and age of onset were determined. Results showed that hyperopia alone was not the cause of convergent squint. Hyperactivity of the center of convergence, defective fusion faculty, and obvious anatomic malformations, although important, were not major inherited factors, except in a smaller percentage of the families. The direction of the deviation remained constant in the families with convergent strabismus and those with divergent strabismus. There were only five families in which both convergent and divergent strabismus were present, but even in these there was no certainty that an inherited defective fusion quality was responsible for the strabismus. The type of squint, however, might vary a great deal within the same family. There are probably two types of inheritance: (1) a defect in the ectoderm, involving the nerve tissues, and (2) a defect in the mesoderm, involving such structures as muscles, check ligaments, and facial attachments. Anisometropia was relatively unimportant in the etiology of familial strabismus. Amblyopia and abnormal retinal correspondence are not inherited. By use of the a priori method, it was found that the data fit a 3:1 ratio, indicating a recessive inheritance for both esotropia and exotropia. There was a certain lack of penetrance in both the families with convergent and in those with divergent strabismus. Convergence is dominant over divergence. About one of every four persons is a carrier of the gene for strabismus. By examining the patient's parent, it is sometimes possible to prognosticate for the patient if he should remain untreated. In the surgical management of strabismus, the behavior of the squint in one member of the family may serve as a fair guide to the response of another member to similar surgical correction, if the types of strabismus are the same in two members.

## A.M.A. Arch. Otolaryngology, Chicago

### 54:609-752 (Dec.) 1951

Nonhemolytic Streptococci in Relation to Epidemic of Influenza: Diagnostic Cutaneous Tests and Specific Treatment. E. C. Rosenow.—p. 609.
Juvenile Nasopharyngeal Angiofibroma in the Female. W. B. Finerman. —p. 620.
Treatment of Intrinsic Carcinoma of Larynx in Patients with Pulmonary Tuberculosis. S. Phillips and J. C. Larkin Jr.—p. 624.
Repositioning the Mandible in Cases of Obstructive (Low Tone) Deafness and Tinnitus. S. H. Ronkin.—p. 632.
Metastatic Malignant Melanoma of Larynx. G. E. Fisher and J. S. Odess. —p. 639.
Patulous Eustachian Tube. P. M. Moore and J. B. Miller.—p. 643.
Foreign Bodies in Air and Food Passages: Observations in One Hundred Eight Private Patients. J. H. Barrett.—p. 651.
Effects of Perforations of Tympanic Membrane on Cochlear Potentials. M. C. Payne Jr. and F. J. Githler.—p. 666.
Subtotal Rhinoplasty with Free Grafts and Contiguous Flaps. M. L. Lewin.—p. 675.
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Modified Tuning-Fork Test That Can Be Substituted for Audiometer. Y. Onchi.—p. 693.
Contributions of Audiology to Fenestration Surgery: Including Formula for Precise Prediction of Hearing Result. G. E. Shambaugh Jr. and R. Carhart.—p. 699.
ntracranial Complications in Otolaryngology. J. L. Baldwin.—p. 723.

## bama State Medical Assn. Journal, Montgomery

### 21:149-180 (Dec.) 1951

Chest Pain Produced by Hyperventilation with Spasm of Intercostal Muscles: Relief by Calcium. W. N. Viar and C. A. Grote.—p. 149.
Use of Antibiotics in Prevention and Treatment of Heart Diseases. A. E. Hussar.—p. 153.
Enterococcal Endocarditis Associated with Carcinoma of Sigmoid: Report of Case. W. C. McCoy and J. M. Mason III.—p. 162.

### 21:181-212 (Jan.) 1952

Management of Acute Ocular Injuries. W. B. Clark.—p. 181.
Surgery in Treatment of Hypertension. J. G. Donald and J. W. Donald. —p. 187.
Professional Responsibility in Catastrophe Management. C. Lyons. —p. 192.
Acute Abdominal Conditions as Seen in General Practice. E. L. Strandell. —p. 194.

## American Journal of Medicine, New York

### 11:665-782 (Dec.) 1951

Clinical and Physiologic Features of Some Types of Pulmonary Diseases with Impairment of Alveolar-Capillary Diffusion: Syndrome of "Alveolar-Capillary Block." R. Austrian, J. H. McClement, A. D. Renzetti Jr. and others.—p. 667.
*Primary Pulmonary Hypertension: I. Clinical and Hemodynamic Study. D. T. Dresdale, M. Schultz and R. J. Michtom.—p. 686.
Pulmonary Function Studies in Polycythemia Vera: Results in Five Probable Cases. W. Newman, J. A. Feltman and B. Devlin.—p. 706.
Effect of Cortisone and ACTH on Fluid and Electrolyte Distribution in Man. M. F. Levitt and M. E. Bader.—p. 715.
*Experience with Methimazole (Tapazole) in Treatment of Hyperthyroidism: Report of 35 Cases. B. L. Hallman and P. K. Bondy.—p. 724.
Arteriosclerosis—Some Clinical Implications. W. Dock.—p. 730.
Diet and Lipotropic Agents in Arteriosclerosis. J. D. Davidson.—p. 736.

**Primary Pulmonary Hypertension.**—Pulmonary hypertension is known to be associated with left heart failure, chronic pulmonary disease, certain types of congenital heart disease, diffuse pulmonary embolism, kyphoscoliotic heart disease, and specific affections of the pulmonary vascular bed. A primary form of pulmonary hypertension has been identified as a distinct entity by means of heart catheterization. Prior to the introduction of heart catheterization techniques this disease was considered rare, but now it is recognized more frequently. Dresdale and associates encountered four cases over a two year period in a 500 bed general hospital. Heart catheterization was performed in three of these four patients, and the clinical and hemodynamic features in these three cases are reported. Such cases present a clinical syndrome that has been previously described by such names as "primary pulmonary vascular sclerosis," "right ventricular hypertrophy of obscure origin," and "idiopathic pulmonary hypertension." The salient clinical features are weakness and dyspnea on exertion in patients in whom right heart failure subsequently develops without antecedent cardiac or pulmonary disease. Venous distention and hepatomegaly occur unassociated with peripheral edema or ascites except late in the course of the disease Cyanosis is a terminal feature unless the disease is complicated by a patent foramen ovale. The electrocardiographic tracings are consistent with right ventricular hypertrophy. The characteristic x-ray findings are right ventricular enlargement, a bulging pulmonary artery segment, prominent hilar vessels, and norma or diminished intrapulmonary vascular markings. Right ventricular hypertrophy is a constant feature of primary pulmonary hypertension, but the pulmonary vascular changes proximal to the capillary bed vary. Pulmonary function studies in two patients ruled out intrinsic lung disease. All three had greatly elevated pulmonary artery pressures, elevated right ventricular and diastolic pressures, diminished cardiac outputs, increased arteriovenous oxygen differences, and normal arterial blood oxygen saturations. The blood volumes and hematocrit values were normal in two of the patients and slightly elevated in the third. Physiologic studies and postmortem findings indicated tha the focus of the increased resistance is in the small pulmonary arteries. Overactivity of the sympathetic nervous system wa suggested by the effect of 2-benzyl-2-imidazoline (priscoline® hydrochloride, an adrenolytic and sympatholytic agent, in lowering the pulmonary artery blood pressure. In view of the sympathetic overactivity, thoracic sympathectomy might b considered.

**Methimazole in Hyperthyroidism.**—In screening a number o compounds for antithyroid activity it was found that methimazole ("tapazole") is approximately 100 times as effective a thiouracil. This paper presents observations on 35 patients with hyperthyroidism who were treated with methimazole. All patients responded favorably, most of them to a dose of 5 mg. fou times daily, but occasionally as much as 40 mg. per day wer given. The rate of response was significantly faster than for group of 50 patients treated with propylthiouracil. Methimazol in combination with iodine provided satisfactory preparation fo subtotal thyroidectomy. The drug did not interfere with the uptake of radioactive iodine in therapeutic amounts. The author feel that methimazole is the best of the available antithyroid drugs.

## Annals of Surgery, Philadelphia

### 134:929-1076 (Dec.) 1951. Partial Index

Increased Urinary Excretion of Noradrenaline and Adrenaline in Cases of Pheochromocytoma. U. S. von Euler.—p. 929.
Cancer of Large Bowel—Analysis of 580 Lesions. H. C. Spear and S. C. Brainard.—p. 934.
Carcinoma of Esophagus or Cardia of Stomach: Analysis of 172 Cases with 81 Resections. Y. K. Wu and H. H. Loucks.—p. 946.
•Experimental Procedures for Entry into Left Heart to Expose Mitral Valve. G. H. A. Clowes Jr.—p. 957.
Resection and End-to-End Anastomosis of Thoracic Aorta in Puppies: Two and Three-Quarter Year Follow-Up. E. B. C. Keefer, F. Glenn and C. T. Dotter.—p. 969.
Homotransplantation of Arterial Segments Preserved by Freeze-Drying Method. A. G. Marrangoni and L. P. Cecchini.—p. 977.
•Study of Behavior of Human Thyroidal Tumors Transplanted into Anterior Chamber of Guinea Pig's Eye. B. M. Dobyns and B. Lennon. —p. 984.
Role of Clostridium Welchii in Strangulation Obstruction. I. Cohn Jr. and H. R. Hawthorne.—p. 999.
Use of Aureomycin in Experimental Intestinal Obstruction. J. H. Morton, F. W. Furth, J. R. Hinshaw and J. A. Schilling.—p. 1007.
Survival Five Years After Radical Pancreatoduodenectomy for Carcinoma of Head of Pancreas. E. M. Miller and O. T. Clagett.—p. 1013.
The Superior Laryngeal Nerve in Thyroid Surgery. R. E. Moran and A. F. Castro.—p. 1018.
Retrograde Milking; Adjunct in Technic of Embolectomy. J. L. Keeley and J. A. Rooney.—p. 1022.
Four and One-Half Year Analysis of Tantalum Gauze Used in Repair of Ventral Hernia. W. J. Flynn, A. E. Brant and G. G. Nelson.—p. 1027.
Total Gastrectomy with Utilization of Segment of Transverse Colon to Replace Excised Stomach. D. State, T. Barclay and W. D. Kelly. —p. 1035.
Hemangio-Endothelioma of Liver. P. F. Fox and L. E. Cella.—p. 1042.
Amputation Neuroma Following Cholecystectomy. V. A. Stembridge. —p. 1048.
Hodgkin's Disease of Stomach with Free Perforation and Apparent Surgical Cure. J. L. Atlee Jr., P. J. Rowan and E. E. Ziegler.—p. 1052.

**Entry into Left Heart to Expose the Mitral Valve.**—The steps by which circulation is maintained and postoperative thromboembolism is prevented when operations are done within the left side of the heart are discussed in this paper. The transventricular and the transauricular approach to the mitral valve was studied in experiments on dogs and a technique was developed that permits entry into the left heart through the auricle for exposure of the mitral valve. A dry field is obtained by diverting oxygenated blood from the left pulmonary veins into a pump that injects it into the systemic arterial tree. A clamp is temporarily placed on the right pulmonary artery to prevent blood from passing through the right lung to the auricle. While the left side of the heart is not functioning, a normal cardiac output with adequate blood pressure and normal oxygenation of blood is maintained by the pump. Postoperative deaths from emboli have been almost entirely eliminated by confining the actual cardiotomy to the auricle. Experiments on ventricular cardiotomy indicate that thrombi are likely to form after slight trauma to the ventricular endocardium. Of six dogs in which the mitral orifice and through it the left ventricular cavity were exposed for periods of 10 to 15 minutes, one died of sepsis. The other five fully recovered. This procedure is not yet suitable for clinical use, but in the laboratory its usefulness has been demonstrated.

**Transplantation of Human Thyroid Tumors into Eyes of Guinea Pigs.**—The objectives in this investigation were as follows: (1) to determine the growth potentialities of benign and malignant tumors of the thyroid in the anterior chamber of the eye of the guinea pig; (2) to compare the potentialities of growth of the transplanted tumor with the morphological interpretation of the fixed microscopic preparation, with special attention to tumors difficult to classify as to their benign or malignant nature; and (3) to determine whether undifferentiated malignant tumors of the thyroid will undergo morphological changes (differentiation) during their growth in the anterior chamber. Twenty-three different human thyroidal tumors were transplanted into the anterior chamber of the eyes of guinea pigs. Very malignant tumors survived but grew only after a latent period of several months. Some of the transplanted tumors were neither absorbed nor grew, but in several instances the surviving fragment consisted of viable tumor cells after more than one year. In some instances morphological differentiation took place in the transplants. The presence of acini containing colloid was observed in some transplants. The possibility of uptake of radioactive iodine was investigated in some of these growing transplants but could not be demonstrated.

## Annals of Western Medicine & Surgery, Los Angeles

### 5:981-1054 (Dec.) 1951

Chloromycetin Therapy in Chronic Ulcerative Colitis. Z. T. Bercovitz. —p. 991.
Effect of ACTH on Experimental Brucellosis in Guinea Pigs. C. E. Tempereau, B. Rawlings, A. Lack and C. M. Carpenter.—p. 997.
•Use of Adrenocorticotropic Hormone (ACTH) and Cortisone in Rheumatoid Arthritis. W. P. Holbrook, D. F. Hill, C. A. L. Stephens Jr. and L. J. Kent.—p. 1000.
Cardiac Arrhythmias and Intravenous Quinidine Treatment. W. H. Lewis Jr.—p. 1004.
Varicose Veins: Part VI. Pathogenesis of Varicose Ulcers. A. Fields. —p. 1010.
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Clinicopathologic Conference. B. E. Konwaler and F. W. S. Modern. —p. 1018.
Forensic Medicine: Systematic Approach to Identification of Toxic Organic Compounds Isolated from Tissues and Fluids. Part II. Tetranitromethane and Azo Coupling Tests. C. J. Umberger and A. Stolman. —p. 1022.
Industrial Hazards of Organic Phosphates and Related Insecticides, Including Parathion. W. E. B. Hall.—p. 1025.

**Corticotropin and Cortisone in Rheumatoid Arthritis.**—Metabolic control studies were made on 60 patients with active rheumatoid arthritis, while 45 were treated with corticotropin (ACTH) for from 10 to 20 days and 15 with cortisone for from 10 to 14 days. In all 58 of the 60 experienced great improvement in the arthritis, both objectively and subjectively, and 16 of these had complete clinical remission. The duration of improvement varied from one day to more than six months, but the majority of patients partially relapsed within two weeks of discontinuing treatment. One patient treated with cortisone developed moderate moon-face on the 14th day. One patient who received from 80 to 160 mg. of corticotropin daily developed transient hypertension and sodium and water retention. None of the 40 patients who received 40 mg. of corticotropin or less per day exhibited significant signs of toxicity; there was no hypertension, glycosuria, elevation of blood sugar levels, sodium and water retention, or measurable evidences of hyperadrenalism. These are short-term studies, and long-term administration may reveal more serious evidences of toxicity. Characteristic alterations in amino acid metabolism have occurred when remissions of rheumatoid arthritis were induced by corticotropin, cortisone, pregnancy and jaundice. Whether these changes are essential to all remissions is not yet known.

## Arkansas Medical Society Journal, Fort Smith

### 48:151-188 (Dec.) 1951

Ano-Rectal Problems in Home and Office. J. Laurens.—p. 151.

### 48:189-206 (Jan.) 1952

Jaundice. P. Thorek.—p. 189.
Erythroblastosis Fetalis (Hemolytic Disease of Newborn). W. F. Mengert.—p. 193.
Report on Third National Conference on Physicians and Schools. H. W. Thomas.—p. 196.
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## Blood, New York

### 6:1213-1306 (Dec.) 1951

*Effects of Combined Folic Acid and Liver Extract Therapy. R. B. Chodos and J. F. Ross.—p. 1213.
*Nature of Castle's Hemopoietic Factor. S. T. Callender and L. G. Lajtha.—p. 1234.
New Inherited Abnormality of Hemoglobin and Its Interaction with Sickle Cell Hemóglobin. E. Kaplan, W. W. Zuelzer and J. V. Neel. —p. 1240.
Observations on Erythrocyte and Plasma Cholinesterase Activity in Dyscrasias of Blood. H. H. Scudamore, L. J. Vorhaus II and R. M. Kark.—p. 1260.
Familial Erythroid Multinuclearity. J. A. Wolff and F. H. von Hofe. —p. 1274.
Interpretation of Red Cell Survival Curves. A. C. Dornhorst.—p. 1284.

**Combined Folic Acid and Liver Extract Therapy.**—Chodos and Ross found that folic acid alone did not prevent development or progression of subacute combined degeneration in 12 of 22 patients treated for from 12 to 25 months. In one patient with macrocytic anemia who had had a total gastrectomy subacute combined degeneration developed after five months of folic acid therapy. Neurological disease did not develop in six pernicious anemia patients treated with folic acid and liver extract for 3½ to 39 months. In 10 pernicious anemia patients with good nutrition, neurological relapses did not progress when liver extract or vitamin $B_{12}$ therapy was instituted, even though folic acid therapy was continued. In two patients with abnormal nutrition and complicating organic abnormalities, neurological disease progressed after institution of liver extract therapy. The authors feel that their observations are best explained by the theory that the hematological and neurological manifestations of pernicious anemia and other macrocytic anemias associated with pathological changes in the gastrointestinal tract and inadequate nutrition are due to a deficiency of more than one substance. The administration of folic acid may improve the hematological status, but may induce a deficiency of another substance or substances, e. g., vitamin $B_{12}$, which are essential for maintenance of a normal blood picture and the integrity of the central nervous system. This deficiency will eventually result in the development of a suboptimal blood picture or subacute combined degeneration of the spinal cord, or both. Folic acid therapy did not produce neurological disease in patients with iron deficiency anemia who had free gastric hydrochloric acid and presumably sufficient intrinsic factor. It did not influence response to ferrous sulfate therapy. Patients with sprue, nutritional macrocytic anemia, and other macrocytic anemias associated with gastrointestinal abnormalities who are treated with folic acid should also be given supplemental liver extract or vitamin $B_{12}$ to prevent development of nervous system disease.

**Castle's Hemopoietic Factor.**—Although the validity of Castle's observations on the relationship of achylia gastrica to pernicious anemia has never been doubted, the interpretation of his findings seems to require modification. Folic acid seems to have no place in his concept and vitamin $B_{12}$ has features of both the extrinsic and hemopoietic factors. Tissue culture has shown that crystalline vitamin $B_{12}$ is not identical with the hemopoietic factor present in normal serum. $B_{12}$ does not ripen megaloblasts into normoblasts in vitro, whereas normal serum and serum from patients with pernicious anemia treated with $B_{12}$ will do this. In the present investigation Castle's original hypothesis was tested in vitro by studying the effect of various combinations of vitamin $B_{12}$ and gastric juice on megaloblastic marrow. Secondly, the heat lability of the hemopoietic factor in normal serum was studied. The term "ripening" is used to signify the transformation of megaloblasts to normoblasts and the term "maturation" for the development of later cell forms from younger forms. The studies revealed the following: 1. Normal gastric juice (intrinsic factor) and vitamin $B_{12}$ together form a thermolabile hemopoietic factor that ripens megaloblasts in vitro, gastric juice or $B_{12}$ alone being inactive. 2. The hemopoietic factor in normal serum also appears to be thermolabile, since heating to 56 C for two hours destroyed some of its activity. 3. The relationship of these factors suggests an extra-gastric source of intrinsic factor with which parenterally administered $B_{12}$ can combine, as well as a gastric source of intrinsic factor.

## Electroencephalography and Clin. Neurophys., Boston

### 3:393-530 (Nov.) 1951. **Partial Index**

Interpretation of Action Potentials Evoked in Cerebral Cortex. J. C. Eccles.—p. 449.
Maturation of Evoked Response of Visual Cortex in Postnatal Rabbit. W. E. Hunt and S. Goldring.—p. 465.
Diencephalic Mechanisms in Petit Mal Epilepsy. E. A. Spiegel, H. T. Wycis and V. Reyes.—p. 473.
Theta and Beta Rhythm in Electroencephalograms of Normal Adults. A. C. Mundy-Castle.—p. 477.
Localizing Value of Asymmetrical Electroencephalographic Tracings Obtained Simultaneously by Homologous Recording: 406 Correlative Studies of Clinical, Pathologic, Pneumoencephalographic and Electroencephalographic Data. R. B. Aird and D. S. Zealear.—p. 487.
Duration, Amplitude, and Shape of Muscle Action Potentials in Poliomyelitis. P. Pinelli and F. Buchthal.—p. 497.
Activation of EEG by Auditory Stimulation Combined with Metrazol: Preliminary Report. P. M. O'Flanagan and H. G. Gibson.—p. 505.

## Gastroenterology, Baltimore

### 19:599-910 (Dec.) 1951

Modern Treatment of Massive Hemorrhage of Peptic Ulcer Origin. B. B. Crohn and H. D. Janowitz.—p. 605.
Comparison of Results in Personally Studied Cases in Which Gastric Vagotomy was Performed with Those Reported to the American Gastroenterological Association. W. Walters, H. H. Belding III and M. K. Smith.—p. 623.

SYMPOSIUM ON ACTH AND CORTISONE AS RELATED TO THE GASTROINTESTINAL TRACT

Modification of Leukocytic Function in Human Windows by ACTH. J. W. Rebuck, R. W. Smith and R. R. Margulis.—p. 644.
Effects of ACTH and Cortisone upon Stomach: Its Significance in Normal and in Peptic Ulcer. S. J. Gray, J. A. Benson Jr., H. M. Spiro and R. W. Reifenstein.—p. 658.
Studies on Effects of Cortisone and Pituitary Adrenocorticotropic Hormone (ACTH) in Sprue Syndrome. D. Adlersberg, H. Colcher anc S. R. Drachman.—p. 674.
Clinical Effects of ACTH in Ulcerative Colitis. J. A. Halsted, W. S Adams, S. Sloan and others.—p. 698.
*ACTH in Treatment of Chronic Ulcerative Colitis. J. M. Elliott, E. D Kiefer and L. M. Hurxthal.—p. 722.
Hormonal Studies in Patients with Chronic Liver Disease. I. J. Pincu A. E. Rakoff, E. M. Cohn and H. J. Tumen.—p. 735.
Epidemic Hepatitis: Prolonged Observations on Clinical Course wi Liver Biopsy Studies. A. W. Barile, J. T. Taguchi and S. N. Maimo —p. 755.
Experience with Operating Gastroscope. C. W. Wirts, J. L. Carroll a D. Wald.—p. 777.
Differentiation of Benign and Malignant Diseases of Gastric Antru C. A. Flood and G. C. Hennig.—p. 787.
Critical Evaluation of Noble Plication Procedure in Management Chronic Recurrent Intestinal Obstruction Due to Adhesions. J. V Lord Jr.—p. 801.
Pelvic Autonomic Neurectomy for Ulcerative Colitis. R. J. Schlitt, J. McNally, B. G. P. Shafiroff and J. W. Hinton.—p. 812.
Morning Sickness in Men: Functional Gastrointestinal Syndrome. I. Warren.—p. 820.
Correlation of Secretory Patterns of Gastric Mucous Substances w Gastroscopic Findings in Humans; Their Significance for Diagnosis "Atrophic Gastritis." G. B. J. Glass, H. Barowsky and S. A. Schwai —p. 829.
Plasma Antithrombin Patterns in Disturbances of Pancreas. I. Innerfi A. Angrist and J. W. Benjamin.—p. 843.
Pathogenesis of Experimental Dysentery Intoxication: Further Studies Inhibition of Lesions. A. Penner.—p. 855.

**Corticotropin in Chronic Ulcerative Colitis.**—Elliott and as ciates report clinical observations on 33 cases of chronic ulce tive colitis in which corticotropin was administered. These tients received the usual nonspecific supportive therapy of b rest, sedation, liberal doses of vitamins, and a low residue, bla high protein diet. Some were given blood transfusions, and a f received antibiotic drugs. The daily dose of corticotropin star at from 20 to 40 mg., which during four or five days was creased to the maximal dosage, usually 100 to 120 mg. per d The highest daily dose was 180 mg. The daily amount w divided into three or four intramuscular injections. After s eral days on the full dosage, the amount was gradually redu to from 20 to 40 mg. daily in two injections. Treatment was c tinued for from 10 to 31 days, and total dosages ranged fr 900 to 2,500 mg. Several patients while receiving corticotro were also given daily intramuscular injections of 25 mg. of tosterone propionate to offset the nitrogen loss that accompa corticotropin therapy. From 1.5 to 3 gm. of potassium nitr was given orally each day that full doses of corticotropin w used in order to prevent potassium depletion. The authors c clude that in certain cases of chronic ulcerative colitis corti tropin therapy can relieve symptoms and be an added stimu to remission of the colitis. It has little value in patients w chronic advanced disease or those already in remission. It is m effective in cases of short duration or in which changes in colon are relatively limited but systemic symptoms are sev Corticotropin probably has little curative effect on the dise in the colon. Small doses of corticotropin taken over long peri may provide some protection against exacerbation of colitis. T side-effects of corticotropin therapy were not serious.

## GP (J. Am. Acad. Gen. Practice), Kansas City, Mo.

### 5:1-193 (Jan.) 1952

Educating the Peptic Ulcer Patient. A. E. Hussar.—p. 34.
When Is a Sprain Not a Sprain? J. K. Stack.—p. 39.
The Art and Ethics of Medicine. E. A. Davis.—p. 43.
Examining Children. L. Steine.—p. 50.
Dangers of Salt Depletion in Heart Failure. F. H. Tepley.—p. 53.
Emotional Factors in Gynecology. G. F. Melody.—p. 59.
Treatment of Heart Disease in Pregnancy. F. A. Kyser.—p. 64.

## Industrial Medicine and Surgery, Chicago

### 20:533-574 (Dec.) 1951

*The Menopause and the Employee. H. C. Hesseltine.—p. 533.
Psychiatric Casualties in Industry. J. D. Moriarty.—p. 538.
Clinical Experiences with Exposures to Ethylene Amines. C. U. Dernehl.—p. 541.
Chronic Alcoholism as Medical Problem in Industry. S. C. Franco.—p. 547.
Dermatitis Venenata from Butesin Picrate Ointment. F. Ronchese.—p. 555.

**The Menopause in Employed Women.**—The untreated natural menopause lasts on an average 18 to 24 months; the induced climacteric tends to last longer, especially in younger women, with an average of 30 or more months. It is estimated that, of the 19,415,000 employed women, about 1,153,000 have menopausal symptoms. Many of these women perform well, even though they may have some emotional irritability, hot flashes, and decreased tolerance of irritating factors. Medical problems of the menopause should be treated by the patient's private physician. The medical director, nurse, or woman counsellor should direct these women to consult their family physician or gynecologist. Women who are easily upset or disturbed by noises may work more efficiently in quieter surroundings. Women who have relaxation of the vaginal walls or prolapse should be placed in jobs in which there is no heavy lifting or physical strain. Those experiencing vasomotor reactions and associated symptoms should receive special consideration for their job placement.

## Journal of International College of Surgeons, Chicago

### 16:681-818 (Dec.) 1951. Partial Index

Mediastinal Tumors: Angiocardiographic Study of 65 Proved Cases. C. T. Dotter and I. Steinberg.—p. 684.
Critical Appraisal of Extension of Radical Operation for Rectal Cancer. H. E. Bacon, L. E. McCrea and H. D. Trimpi.—p. 694.
Rupture of Pregnant Uterus. W. W. Daniel and J. S. Inman Jr.—p. 706.
Intra-Arterial Transfusion of Blood. C. S. White and D. Stubbs.—p. 716.
Cystic Torsion of Ovarian Pedicle in Infants and Children. C. A. Proane.—p. 724.
Retroperitoneal Cysts and Tumors. M. Nordland and M. A. Nordland.—p. 731.
Postoperative Esophagitis Requiring Surgical Treatment. T. H. Hewlett and A. Behrend.—p. 740.
Evaluation of Operative Treatment of Ruptured Lumbar Discs. M. B. Noyes and J. A. Hunter.—p. 746.
*Papilloma of Bladder. C. P. O'Neill.—p. 753.
Current Conceptions of Nonsuppurative Labyrinthitis. G. B. Trible.—p. 759.
Heterotopic Pregnancy with Tubal Abortion. J. R. Sprague and E. A. Sprague.—p. 765.
Intracardiac Valvular Surgery for Congenital Pulmonary Stenosis and Acquired Mitral Stenosis. E. H. Fell.—p. 768.
Perforated Bowel with Inguinal Hernia. S. Vernon.—p. 776.
Endoscopic Photography in Proctology. H. L. Feit.—p. 783.

**Papilloma of Bladder.**—O'Neill discusses his experiences in treatment of 200 vesical tumors during the last 20 years. Papillomas constitute 90% of all tumors of the bladder, and although their exact cause is not known, it is believed that chronic irritation is a forerunner of the tumor. Calculi, occupational exposure to coal tar products, or bilharziasis are possible causes of irritation. Bleeding is a warning sign of tumor development. Cystoscopic examination is the chief diagnostic aid, but larger growths may be demonstrated roentgenographically. For treatment fulguration with the high frequency current through the operating cystoscope may suffice, provided the roots are removed. If only the branches of the papilloma are cut off, recurrence will follow. Radon or radium in the form of needles or a capsule anchored in a Foley catheter are effective agents for attacking the roots of the papilloma. With its use vesical function may be preserved. Surgical diathermy through a suprapubic cystotomy is also used. Total cystectomy, with implantation of the ureters into the rectum and rectosigmoid, is gaining favor, but, on the other hand, the surgical treatment should not be too radical. Total cystectomy with the creation of a cloaca may be too heroic when it is possible to remove the growth and its roots and spare the bladder. In the presence of far advanced tumors, transplantation of the ureters with the carcinoma left in situ has afforded some palliation. In ureteral implantation a submucosal tunnel should be created, and a mucosa-to-mucosa approximation accomplished in order to prevent obstruction, reflux, infection, and leakage.

## Journal Lab. and Clinical Medicine, St. Louis

### 38:829-990 (Dec.) 1951

*Significance of Hemoglobinemia and Associated Hemosiderinuria, with Particular Reference to Various Types of Hemolytic Anemia. W. H. Crosby and W. Dameshek.—p. 829.
*Parahemophilia (Owren's Disease): Report of Case in a Woman with Studies on Other Members of Her Family. F. Stohlman Jr., W. J. Harrington and W. C. Moloney.—p. 842.
Cellular Composition of Peritoneal Fluid in DBA Mice After Intraperitoneal Injection of Normal or Malignant Human Cells. G. W. Hilliard and H. E. Nash Jr.—p. 846.
Fatal Agranulocytosis Resulting from Procaine Derivative. H. Miller, R. C. Pollock and G. C. Griffith.—p. 850.
Study of Hemodynamics in Coarctation of Aorta Using Dye Dilution and Direct Intra-Arterial Pressure Recording Methods. E. F. Beard, E. H. Wood and O. T. Clagett.—p. 858.
Alleged Sedative Effect of Thonzylamine Hydrochloride (Neohetramine). C. Landis and J. Zubin.—p. 873.
Relation Between Resistance to Chemotherapeutic Agents and Other Biochemical Properties of Some Viridans Streptococci and Enterococci. M. E. Heatherman and W. E. Clapper.—p. 881.
Distribution and Antibiotic Sensitivity in Fifty-Five Strains of Klebsiella Pneumoniae. C. F. Lemke and L. E. Gates.—p. 889.
Intravascular Distribution of $NA^{24}$ Injected Intravenously in Man. L. Bakay, B. Selverstone and W. H. Sweet.—p. 893.
Urinary Excretion of Choline and Trimethylamines After Intravenous Administration of Choline in Liver Diseases. J. de la Huerga, H. Popper and F. Steigmann.—p. 904.
Metabolic Effects of Compound S (11-Desoxy-17-Hydroxycorticosterone) in Man. S. S. Fajans, L. H. Louis and J. W. Conn.—p. 911.

**Hemoglobinemia and Hemosiderinuria.**—Hemoglobinemia may be defined as the existence of extracorpuscular hemoglobin in the plasma in excess of the highest level normally found, that is, a level of 5 mg. per 100 cc. An excessive plasma hemoglobin concentration occurs as the result of intravascular hemolysis and is therefore an indication of hemolytic disease. The concentration of free hemoglobin has been known to reach values above 500 mg. per 100 cc. in incompatible transfusion reactions and during the paroxysms of blackwater fever. When the concentration of plasma hemoglobin exceeds the renal threshold, hemoglobin is excreted in the urine. Since the threshold lies in the neighborhood of 90 to 100 mg. per 100 cc. it may be surmised that a rather severe hemolytic reaction must precede the appearance of hemoglobinuria. Crosby and Dameshek studied the plasma hemoglobin concentration in a variety of hematological disorders and examined the urine of these patients for the presence of hemosiderin. Control tests of plasma from more than 100 healthy subjects and patients without blood dyscrasias revealed that the plasma hemoglobin level never exceeded 4 mg. per 100 cc. The results of plasma hemoglobin and urinary hemosiderin determinations in 23 patients with various kinds of hemolytic disease are recorded in a table and discussed. It is suggested that the definition of the hemolytic syndrome, as it occurs in acquired hemolytic anemia, sickle-cell anemia, and severe Mediterranean anemia, should be amplified to include a low-grade hemoglobinemia as one of its characteristics. Hemosiderinuria was invariably found when hemoglobinemia was present. The demonstration of hemoglobinemia provides unequivocal evidence of abnormal hemolysis and therefore of hemolytic disease. As a point of differential diagnosis, hemoglobinemia may distinguish between sickle-cell trait and sickle-cell anemia, between mild and severe Mediterranean anemia, and, with some reservations, between acquired hemolytic anemia and hereditary spherocytosis. In acquired hemolytic anemia continued hemoglobinemia must be regarded as an unfavorable prognostic sign. However, it was noted that hemoglobinemia was the first sign to diminish or disappear as patients improved.

**Parahemophilia (Owren's Disease).**—Stohlman and associates point out that in 1947 Owren in a monograph on blood coagulation presented studies on a hemorrhagic diathesis in a young woman due to deficiency of a newly discovered coagulation-promoting globulin, which he called factor 5. He defined the role of this protein in accelerating the conversion of prothrombin to thrombin, and suggested the term parahemophilia for his patient's syndrome. Recently Frank, Bilhan, and Ekren published data on a second case of parahemophilia that occurred in a young man whose father and brother had a tendency to bleed. The present report is concerned with the third recorded instance of this disorder and the first established case in this country, although some of the cases of hypoprothrombinemia reported prior to Owren's publication were probably parahemophilia. The past history of the 20-year-old woman presented here was important in that she had severe hemorrhage necessitating transfusions after tonsillectomy at the age of 8 years and after rhinoplasty at 17 years of age. Transfusions were also required six months prior to the present admission because of marked postpartum blood loss that occurred despite an apparently uneventful labor and normal delivery. In all these episodes the bleeding was promptly controlled by administration of fresh blood. There was no history of excessive blood loss from minor lacerations or during menses. Spontaneous development of ecchymoses had not been noted. She had been hospitalized at this time because of severe abdominal pains and a diagnosis of acute cholecystitis. Tests revealed no evidence of parenchymatous liver disease. On the basis of the history and a prolonged prothrombin time, it was decided to refrain from surgical intervention. After her symptoms had subsided, her blood was subjected to tests and studies were made on blood specimens of both parents and a brother and sister. The data obtained indicate that this woman's hemorrhagic diathesis was due to an isolated deficiency of factor 5, and conformed to the diagnostic criteria of parahemophilia described by Owren. Studies on her immediate family failed to establish a genetic pattern for its occurrence.

## Journal-Lancet, Minneapolis

71:519-562 (Dec.) 1951

Ureterosigmoidostomy Following Radical Pelvic Surgery. R. S. Rodgers. —p. 519.
Cerebral Angiography. L. A. French.—p. 523.
Whitman Reconstruction of Hip. C. G. Caspers and M. O. Henry. —p. 527.
Ophthalmic Headache: Headache Among Children. F. M. Walsh and L. D. Harris.—p. 530.
New Umbilical Cord Clamp. J. A. Haugen.—p. 534.
The Civilized Colon. H. F. R. Plass.—p. 535.
Intussusception. A. W. Ide Jr.—p. 541.

## J. Pharmacology & Exper. Therap., Baltimore

*103:337-496 (Dec.) 1951. Partial Index*

Analysis of Mode of Action of Curare on Neuromuscular Transmission: Effect of Temperature Changes. P. E. B. Holmes, D. J. Jenden and D. B. Taylor.—p. 382.
Effect of Ascorbic Acid on Urinary Excretion of Citrovorum Factor Derived from Folic Acid. A. D. Welch, C. A. Nichol, R. M. Anker and J. W. Boehne III.—p. 403.
Comparison of 42 Cardiac Glycosides and Aglycones. K. K. Chen, F. G. Henderson and R. C. Anderson.—p. 420.
Bioassay of Diuretic Agents in Patients with Congestive Failure. T. Greiner, H. Gold, C. I. Bliss and others.—p. 431.
Mechanism of Vasomotor Action of Quinidine. Go Lu.—p. 441.
Influence of Dosage Regimen on Therapeutic Effectiveness of Penicillin G in Experimental Lobar Pneumonia. L. H. Schmidt and A. Walley. —p. 479.

## Journal of the Student A.M.A., Chicago

1:1-76 (Jan.) 1952

Surgery and Bronchiectasis. R. M. Janes.—p. 21.
Bacille Calmette Guerin: Survey and Evaluation. H. A. Saltzman.—p. 28.
Treatment of Acute Glomerular Nephritis. R. W. Browning.—p. 33.

## Kansas Medical Society Journal, Topeka

52:577-632 (Dec.) 1951

Congenital Toxoplasmosis: Case in Kansas. F. A. Allen.—p. 577.
Glomus Jugulare Tumor. D. M. Gibson and G. O'N. Proud.—p. 581.
*Further Studies of Geography of Histoplasmin Sensitivity in Kansas and Missouri. M. L. Furcolow and J. Sitterley.—p. 584.
Role of Thyroid Feedings in Pregnancy. L. R. Pyle.—p. 589.

**Geographic Differences in Histoplasmin Sensitivity in Kansas and Missouri.**—Histoplasmin skin tests were performed on 7,855 grade and high school students between the ages of 5 and 18 years, of whom 6,400 were residents of six counties in Kansas and 1,455 were rural residents of Boone County, Missouri. All persons tested were lifetime residents of these counties. The tests were made with 0.1 cc. of a dilution of 3 to 1,000 of histoplasmin injected intracutaneously in the forearm, and the reactions were read after 48 hours in the majority of cases. The percentage of positive reactors observed among these students varied considerably from slightly over 1% in the counties in the northwest of Kansas to 84% in Boone County in Missouri. The rural resident sensitivity rates were consistently higher than the urban resident rates, and this increased sensitivity among rural residents was most pronounced where the rates were highest. There was only a slightly higher percentage of positive reactors among males than females. Results of the authors' study confirmed the pronounced geographic differences in histoplasmin sensitivity rates in Kansas and Missouri. Positive reactions are extremely rare in northwest Kansas and extremely common in northeast Kansas and Missouri. There is a definite relationship between the presence of moisture and the growth of most fungi. In comparing the general geography and the presence of moisture in the various areas tested, it is evident that the high plains regions have few large streams, rivers, and lakes, so that surface water rapidly drains away. Farther east, toward the northeast, the moisture and temperature factors are more favorable to the growth of Histoplasma capsulatum. It would seem, therefore, that the geographic variation in reaction incidences could be accounted for by environmental differences.

## Missouri State Medical Assn. Journal, St. Louis

49:1-96 (Jan.) 1952

SYMPOSIUM ON CANCER OF THE FEMALE GENITAL TRACT

Dysontogenic Tumors of Lower Female Genital Tract. R. M. Ruch. —p. 17.
Review of Complications from Radium Treatment for Carcinoma of Cervix Uteri. M. D. Bonebrake and A. I. Sherman.—p. 19.
Radioactive Colloidal Gold for Treatment of Cancer of Female Reproductive Tract. A. I. Sherman, M. Bonebrake and W. M. Allen —p. 24.
Improvement in Finding of Anatomically Early Squamous Carcinom of Cervix Uteri. J. B. Frerichs, A. I. Sherman, R. M. Ruch an S. M. Monat.—p. 26.
Vaginal Applicators in Treatment of Carcinoma of Cervix. A. F Sudhold Jr.—p. 29.
Present Day Concepts in Etiology of Rheumatic Fever. L. Kahn an D. Goldring.—p. 33.

## New York State Journal of Medicine, New York

51:2695-2806 (Dec. 1) 1951

Results of Treatment of Skeletal Tuberculosis in Central New York R. D. Severance, J. H. Bauer, H. L. Murray and J. J. Kalamaride —p. 2731.
Infantile Cortical Hyperostoses with Report of Two Cases. H. Hallock —p. 2737.
Corkscrew Bolt for Intracapsular Fracture of Hip. R. K. Lippman —p. 2740.
Use of Infrared Radiation in Colorimetry: Rapid Estimation of Alcoh in Body Fluids Using Test-Tube Still. F. R. Weedon, J. H. Gustafso and J. D. Rolfe.—p. 2744.
Classification of Allergic Tissue Responses. M. G. Bohrod.—p. 274
Malignant Exophthalmos with Subacute Myocarditis and Generalize Myositis. K. L. Terplan, A. B. Constantine, G. F. Koepf and G. C Dayton.—p. 2750.
Study of Workmen's Compensation and Heart Disease in New Yor City L. J. Goldwater and N. M. Weiss.—p. 2754.
*Anorectal Complications of Aureomycin, Terramycin and Chloromyceti Therapy. S. D. Manheim.—p. 2759.
Cancer of Corpus Uteri Apparently Completely Removed by Curettag J. W. Tandatnick and B. Karen.—p. 2761.
Clinical Evaluation of Mumps Virus Vaccine in an Orphanage. D. Bli and H. M. Eisenoff.—p. 2765.
ACTH and Cortical Steroids in Postpartum Plasma: Preliminary Repor L. W. Granirer.—p. 2767.

**Anorectal Complications from Antibiotics.**—The use of aure mycin, terramycin, and chloramphenicol in a wide variety symptoms and diseases has made it apparent that the administration of these drugs resulted in anorectal complications. The patients treated by Manheim presented an almost identical symptom pattern. They complained of perianal itching associated with pain, burning sensation, and bleeding on defecation. They gave a history of oral ingestion of aureomycin, terramycin, or chloramphenicol approximately two weeks before the onset of symptoms. A great many also gave a history of severe diarrhea very soon after taking the antibiotics. Proctologic examination usually revealed perianal erythema with thickening and excoriation of the perianal skin with or without multiple superficial fissures at the margins of the anal aperture. Observations on about 100 cases showed that the complication was more frequent in males (about 2:1). Aureomycin was the offending drug in the largest number of cases, chloramphenicol in the smallest number. The dosage and length of administration of the drugs did not influence the severity of the symptoms. In some instances the anorectal complications following the use of these antibiotics are far severer than the diseases for which they were employed. Furthermore, the complications were extremely resistant to treatment. Many patients had severe symptoms for as long as six to eight months despite active therapy. When pruritus was the chief complaint, fungicidal ointments and powders were used. In patients exhibiting pain, bleeding, and superficial fissures local analgesic ointments appeared helpful. Patients requiring surgery responded well and healed rapidly. Recently, the author prescribed acidophilus or buttermilk in the belief that this would aid in the restoration of the normal intestinal flora that had been altered by the antibiotics. Cure or striking improvement resulted.

## Northwest Medicine, Seattle

50:909-1000 (Dec.) 1951

Outline of Undesirable Effects of ACTH and Cortisone. J. L. Bakke. —p. 930.
Washington Experience with Voluntary Admissions to State Hospital for Observation and for Treatment. C. H. Jones and L. R. Hughes. —p. 933.
Simple Procedure to Reduce Post-Operative Tonsil Bed Bleeding. M. K. Hartzell.—p. 936.

## Ohio State Medical Journal, Columbus

47:1085-1184 (Dec.) 1951

Obesity, Cholesterol, Arterial Disease and Hypertension. P. S. Ross. —p. 1109.
Chronic Altitude Sickness with Potassium Intoxication: Case Report. C. E. Steyer and H. F. Loyke.—p. 1115.
Prevention of Stasis Syndrome in Legs. L. Goldman.—p. 1119.
Tracheal Lavage as Diagnostic Procedure in Pulmonary Tuberculosis. O. Neufeld, W. L. Wallbank and F. R. Canelli.—p. 1124.
Spontaneous Rupture of Rectus Abdominis. L. J. Szary.—p. 1126.
Rupture of Aneurysm of Circle of Willis During Pregnancy. W. Brehm. —p. 1127.
Cardiac Symptoms in the Adolescent—Psychiatric Viewpoint. J. W. Higgins and B. Schwartz.—p. 1129.

## Surgery, St. Louis

30:923-1084 (Dec.) 1951

Preliminary Clinical Observations of Serum Lipase Activity as Determined by Colorimetric Method. A. M. Seligman, P. Glotzer and L. Persky. —p. 923.
Individual Essential Amino Acids in Plasma and Urine of Surgical Patients: With Particular Reference to Comparison Between Well-Nourished and Malnourished Patients. T. C. Everson and M. J. Fritschel.—p. 931.
Cannula for Emptying Small Bowel in Cases of Intestinal Obstruction. D. Pampari.—p. 944.
Significance of Perineal Pain Following Resection for Carcinoma of Rectum. J. M. Beal and F. L. Ashley.—p. 950.
Repair of Cranial Defects with Iliac Bone. H. G. McClintock and R. O. Dingman.—p. 955.
Further Observations upon Intramedullary Pressures During Fixation of Fractures by Küntscher's Method. L. F. Peltier.—p. 964.
Scrubbing the Pleura in Treatment of Chronic and Recurrent Spontaneous Pneumothorax. J. M. Beardsley and V. M. Pahigian.—p. 967.
*Arsenical Epitheliomas of Medicinal Origin. S. W. Arhelger and A. J. Kremen.—p. 977.
Experimental Study of Thrombogenic Properties of Magnesium and Magnesium-Aluminum Wire in Dog's Aorta. P. Stone and J. W. Lord Jr.—p. 987.
Microscopic Observations of Living Mammalian Kidney: Effect of Crush Injuries, Shock, and Adrenalin on Cortical Blood Flow. J. F. R. Fleming and W. G. Bigelow.—p. 994.
Open Safety Pin in Stomach: Method of Removal. H. F. Berg.—p. 1004.

**Arsenical Epitheliomas of Medicinal Origin.**—This paper describes eight cases of cutaneous malignancy and one case of benign epitheliomatosis resulting from the medicinal use of arsenic. These cases were observed within a two year period, during which a total of 110 new cases of skin cancer were seen, indicating a fairly high incidence of these arsenical cancers. Hyperpigmentation or melanosis and keratoses may precede arsenical skin cancer. The malignant lesions assume the gross features of the different types of cutaneous epithelioma (squamous-cell, basal-cell, and mixed-cell types). Occasionally they may assume the superficial plaquelike forms simulating superficial epitheliomatosis; other lesions may be indistinguishable from Bowen's intraepithelial epitheliomatosis, and occasionally the different types of epithelial neoplasms coexist. Furthermore, interrogation may reveal additional symptoms of arsenism, such as disorders of the central and peripheral nervous system; hematopoietic disturbances, usually microcytic anemia; chronic respiratory disturbances, such as pharyngitis, bronchitis, and even perforation of the nasal septum; and gastrointestinal disorders and cirrhosis of the liver. All of the eight patients described had received a solution of potassium arsenite (Fowler's solution) in the treatment of such conditions as bronchial asthma, Sydenham's chorea, rheumatic fever, psoriasis, or dermatitis. The interval between the exposure and the appearance of the malignant lesion was over 20 years in most of the cases. Arsenical keratoses are potentially malignant lesions. Surgical excision is the treatment of choice for all suspicious lesions exhibiting recent change in size or growth rate, or surface ulceration. Follow-up examinations must be made at regular intervals. The choice between surgical excision and roentgen therapy in malignant epithelioma depends on the location and extent of the lesions. In advanced cases involving the skin of the extremities, some type of amputation is usually necessary. Because of somewhat better cosmetic results, roentgen therapy is indicated for small, early lesions occurring about the nose, eyes, or ears.

## Virginia Medical Monthly, Richmond

78:635-690 (Dec.) 1951

Diagnosis of Carcinoma of Colon and Rectum. C. Williams.—p. 637.
*Hematuria as Manifestation of Sickle Cell Disease. A. A. Creecy, N. R. Varano and T. G. Hurdle.—p. 642.
Place of the General Practitioner in the General Hospital. J. O. Boyd Jr. —p. 647.
Cholelithiasis Not Recognized by Cholecystogram. G. J. Levin.—p. 652.
Treatment of Advanced Cancer of Bladder. F. M. Jacobs.—p. 655.

**Hematuria in Sickle Cell Disease.**—About 8% of American Negroes have sicklemia, or sickle cell trait, but in the majority this produces no symptoms. However, about 1 in 40 have a severe chronic anemia resulting from excessive destruction of erythrocytes, and the term sickle cell anemia is applied to their condition. Tests demonstrated that between 30 and 60% of the erythrocytes in the venous circulation of persons with sickle cell anemia, but less than 1% of those in the venous circulation of persons with the sickle cell trait are sickled. Comparative studies of the hemoglobin of patients with sickle cell anemia and of healthy persons suggested that there are pathological changes in the hemoglobin molecule in sickle cell anemia. The sickle cell trait can be detected by a method described by Williams and Mackey. After briefly describing this test, Creecy and associates call attention to hematuria as a manifestation of sickle cell disease, describing two cases of their own observation. The first case demonstrates that hematuria may be the only clinical manifestation of sickle cell disease. The other case shows that hematuria may be only one of many and varied manifestations of the disease. The incidence of the disease in Negroes is sufficiently high (8%) to warrant a sickling test on all Negro patients when the diagnosis is not immediately apparent, and a routine sickling test seems justified in all hospitalized Negro patients.

## West Virginia Medical Journal, Charleston

48:1-34 (Jan.) 1952

Why Wait—Let's Do It Ourselves. F. S. Crockett.—p. 1.
Health Councils for Healthier Communities. S. Milliken.—p. 3.
West Virginia Can Have Community Health Councils. N. H. Dyer.—p. 7.
Leadership and Teamwork Essential in Organization of Health Councils. G. Humphreys.—p. 9.
Sherlock Holmes and the Portugese Man-of-War. E. J. Van Liere.—p. 10.

## World Medical Association Bulletin, New York

4:1-64 (Jan.) 1952

World Medical Association Inaugural Address. D. Knutson.—p. 7.
Cardiovascular Diseases as Problem of Medical Organization. G. Biorck. —p. 9.

# FOREIGN

## Acta Medica Scandinavica, Stockholm

### 141:77-152 (No. 2) 1951. **Partial Index**

Follow-up Study of Patients with Rheumatic Fever, with Special Reference to Chronic Cardiac and Articular Disease. E. Arnsø, K. Brøchner-Mortensen and B. Hastrup.—p. 77.
One Year's Experience with Unipolar Electrocardiography. S. Belfrage.—p. 100.
*On Streptomycin Therapy in Tuberculous Meningitis and in Miliary Tuberculosis. H. C. A. Lassen and F. Neukirch.—p. 110.

**Streptomycin in Tuberculous Meningitis and Miliary Tuberculosis.**—Streptomycin concentrations in the spinal fluid high enough to be effective against the tubercle bacilli can be secured without intrathecal administration when the meninges are inflamed. The severe complications sometimes associated with intrathecal injections, especially neurological sequelae, make it advisable to avoid intrathecal treatment whenever possible. Reporting on 50 cases of disseminated tuberculosis treated with streptomycin, the authors state that intramuscular treatment carried out for a prolonged period and with fairly high doses will prove almost as effective as combined intramuscular and intrathecal treatment. Improvement takes place slowly, usually not appearing for several weeks. The use of streptomycin has made it possible to cure between 30 and 40% of patients with tuberculous meningitis, and the introduction of dihydrostreptomycin and use of *p*-aminosalicylic acid will probably result in a higher percentage of cures. Vestibular function was completely abolished in all the patients who survived, but none of them became deaf. The prognosis is least favorable in cases of tuberculous meningitis accompanied by miliary tuberculosis, and is most favorable in cases of miliary tuberculosis alone. No instance of disseminated tuberculosis in persons who had received Calmette vaccination and subsequently had a positive tuberculin reaction has been seen at the Central Tuberculosis Dispensary in Copenhagen. Consequently the authors believe that Calmette vaccination of all tuberculin-negative persons would prevent the occurrence of tuberculous meningitis and miliary tuberculosis.

## Archiv für klinische Chirurgie, Heidelberg

### 269:471-586 (No. 6) 1951. **Partial Index**

*Animal Experiments on Exchange Transfusions in Uremic Conditions. W. Dornes, H. Lurz and B. Sachsse.—p. 471.
Aspiration and Aspiration Pneumonia. E. Stutz.—p. 484.
Pathophysiology of Respiration Following Lobectomy and Pneumonectomy. J. Maurath and M. Werber.—p. 496.
Question of Modification of Sexual Function Following Resection of Lumbar Sympathetic Nerve. P. Alnor.—p. 506.
Fatal Pulmonary Embolisms at Heidelberg Clinics: Investigation of 377 Cases of the Last 20 Years. K. Spohn.—p. 518.

**change Transfusion in Uremic Conditions.**—A method of emoving metabolic waste products during uremia with the aid of healthy kidneys of a second organism by exchange transfusion is reported. To study the method experimentally Dornes and associates induced uremia in dogs either by bilateral ligation of the ureters immediately above the bladder or by the combination of unilateral nephrectomy and ligature of the contralateral ureter. They first transfused 100 cc. of uremic blood into the healthy animal and after a short interval, transferred the same amount to the uremic animal. This technique was unsatisfactory in that, with successive transfusions, increasing amounts of "mixed" blood were exchanged and the desired effect was lessened. Later they removed 300 to 500 cc. of blood at once and kept it in specially prepared storage containers and infused it into the healthy animal after the uremic animal had been given a transfusion. Summarizing the results of their experiments, the authors say that dogs usually die in uremic coma from three to four days after they have been subjected to ligation of both ureters. Exchange transfusions, however, prolonged the life of such animals. Neither clinical nor histologic signs of damage could be demonstrated in the kidneys of donor animals. After removal of one kidney, the other kidney, despite total mechanical urinary blockage of three days' duration, is capable of resuming its secretory function and can remove all metabolic waste products within 200 hours. As late as 100 hours after the ligation of both ureters, surgical recanalization will restore the secretory function of the kidneys to such a degree that complete detoxication of the organism is accomplished within fou days. The effect of exchange transfusion as a supportive measure is particularly noticeable after the kidney has begun to resume its function, the nitrogen values in the serum declining sharply. Glass prostheses proved valuable for bridging surgically induced ureteral stenoses. The authors feel that their results justify further experimental and clinical trials with exchange transfusions.

## Australian and New Zealand J. Surgery, Sidney

### 21:81-160 (Nov.) 1951. **Partial Index**

Tumours and Cysts of Mediastinum. Part II. K. Hirschfeld.—p. 81.
*Osteitis Pubis. H. Mortensen.—p. 103.
Five Unusual Thoracic Cases. J. S. MacMahon.—p. 110.
*Mucous Cysts of Fingers. E. S. J. King.—p. 121.
Laryngeal and Sub-Glottic Tracheal Stenosis. D. G. Carruthers.—p. 130.
Tendon Repair in Hand—Supplementary Paper. B. K. Rank and A. R. Wakefield.—p 135.
Achalasia of Cardia. H. D'Arcy Sutherland.—p. 140.
Fractures in Neighbourhood of Shoulder Joint. L. Teece.—p. 145
Melano-Carcinoma of Ciliary Body. J. D. Hicks.—p. 153.

**Osteitis Pubis.**—Osteitis pubis is a process of rarefaction in bon that is a complication of operations on the lower urinary tract Prior to 1947 practically all cases occurred following the secon stage of a suprapubic prostatectomy. Since then many case have occurred following prostatectomy with the retropubi approach recommended by Millin. Although Millin himse observed only nine cases of osteitis pubis in about 1,100 retr pubic prostatectomies, other urologists observed it in such high percentage of prostatectomies performed by this rou that they viewed the procedure with concern and some aba doned it. Of the 44 cases of osteitis pubis listed in this repor 29 or 65% followed retropubic prostatectomy. Sympton usually begin from 14 to 28 days after operation. Pain is t chief symptom. It begins in the midline and is associated wi great tenderness over the symphyseal region. With extension of the disease to the rami of the pubes, there is pain in the inguinal regions and in the upper medial aspect of the thighs. Later the ischia become involved, with pain in the perineum and the buttocks. The muscles attached to the affected bones become spastic. Micturition becomes painful, particularly at the end of the act, and because of contraction of the levatores ani muscles and the use of the bed pan, defecation also becomes painful. The severe pains may persist for weeks or even months. After the hyperacute stage, walking or sitting may be painful for as long as 12 months. In the milder cases the symptoms are less severe and of shorter duration. The earliest radiologic sign, a moth-eaten appearance of the pubes adjacent to the symphyseal cartilage, is seen about the third weeks after the operation. Treatment is of little help. In the cases reported here some relief was obtained by chemotherapy in two cases, and in one rapid relief followed the use of large doses of vitamin B complex. In all other cases the routine measures of chemotherapy, vitamin therapy, radiotherapy, diathermy and radiant heat were tried without significant results. The pathogenesis of the lesions remains unexplained, but appears to be related to the opening of the prevesical space and the bladder in most cases.

**Mucous Cysts of Fingers.**—Cysts of the fingers, usually small in size and found on the dorsal aspect of the distal part of a digit, although not serious, may cause discomfort and are regarded as unsightly or interfering. They frequently recur after removal. King shows that the following conditions, which are quite different in their site, course, and mode of development, have been grouped together: (1) the mucous cyst of the finger; (2) the ganglion, which is a periarticular or peritendenous synovial cyst; (3) the periarticular fibrous nodule, which may be cystic. Confusion is due partly to lack of appreciation of fundamental features of the subcutaneous and periarticular tissues. The mucous cyst develops in the subcutaneous tissue by a change of the fibrous tissue into mucoid tissue. The material becomes more and more fluid until a cyst is formed. There is no evidence of a communication, in the morphological sense, with an adjacent joint or tendon sheath. Reports in the recent literature suggest that results of radium or roentgen treatment of the mucous cyst may not be as good as was hoped, and simple surgical removal of the cyst is likely to be followed by recurrence. If, however, the whole area of the skin of the dorsum of that segment of the digit is removed and replaced by new skin, in the form of a graft, then recurrence will not take place. Although a ganglion may be associated with a mucous cyst, the ganglion is a much deeper structure, occupies a wider area than does the mucous cyst, is usually more proximal in position, and is never vesicular in appearance. Periarticular nodules (Heberden's nodes) are related to a joint and are located in the deeper layers of the subcutaneous tissues. They do not usually approach the epidermis, and, when they do, they suggest a semisolid structure and do not show the vesicular or semitranslucent appearance of the mucous cyst.

## Brain, London

74:377-528 (Dec.) 1951

Thalamic Activity in Stupor. D. Williams and G. Parsons-Smith.—p. 377.

Clinical Aspects of Human Cortical Function. M. Reinhold.—p. 399.

Physiological Effect of Variations in Stimulus Frequency on Motor Cortex of Monkey. J. Hyde and E. Gellhorn.—p. 432.

Restoration of Motor Function Following Hemiplegia in Man. T. E. Twitchell.—p. 443.

Segmental Innervation of Muscles of Hand. R. J. Last.—p. 481.

Classification of Peripheral Nerve Injuries Producing Loss of Function. S. Sunderland.—p. 491.

## Brasil-Médico, Rio de Janeiro

65:459-482 (Nov. 3 and 10) 1951. **Partial Index**

*On the Possible Role of Sensitization by Homologous Tissue Products in Rheumatoid Arthritis: Preliminary Note. Pedro Nava.—p. 464.

Malignant Melanoma of the Choroid. Accácio de Souza Branco.—p. 467.

**Sensitization by Homologous Tissue Products in Rheumatoid Arthritis.**—A new hypothesis of the pathogenesis of rheumatoid arthritis that takes into account the part played by the sensitization and hyper-reaction of the individual to substances in his own tissues may offer a better explanation of the appearance and evolution of this condition than any hitherto given. According to this hypothesis, rheumatoid arthritis begins as an infectious arthritis caused by a bacterial agent; this agent renders certain substances in the affected organism sensitizing; the reaction to these sensitizing substances gives a distinctive character to the disease, which is liberated from its bacterial cause and continues as an allergic and anaphylactic reaction; and reinfection, the patient's general condition, cold, and trauma continue the reaction to the sensitizing substances. If this hypothesis is correct, it is compatible with the bacterial theories, since the sensitization may be caused, not by one bacterium alone, but by any one of several.

## British Medical Journal, London

2:1535-1592 (Dec. 29) 1951

Thomas Addison and Background to Cortisone. F. G. Young.—p. 1535.

Plasma Insulin in Human Diabetes Mellitus. J. Bornstein and R. D. Lawrence.—p. 1541.

Treatment of Tropical Ulcers. H. D. Obrien.—p. 1544.

*L-Noradrenaline as a Vasoconstrictor. H. C. Churchill-Davidson.—p. 1551.

Trichlorethylene Analgesia in Labour: Observations on Its Use in Rotunda Hospital. O. Browne, V. McCormick and F. de Burgh Whyte.—p. 1556.

Congenital Dermal Sinus Associated with Meningitis: Report of Fatal Case. B. S. Cardell and B. Laurance.—p. 1558.

Use of Tantalum Gauze in Repair of Large Gunshot Wound of Chest: Report of Case. W. D. Rider.—p. 1561.

Thrombocytopenic Purpura Complicating Infectious Mononucleosis. R. Finlayson.—p. 1563.

Production of Blocking Anti-D Antibody by Injection of $D^u$ Red Cells. J. Ruffié and M. Carrière.—p. 1564.

**Arterenol as a Vasoconstrictor.**—In studying the physiological actions of epinephrine, methedrine, and L-arterenol, it was found that the pressor activity of epinephrine and methedrine is mainly the result of increased cardiac output, whereas arterenol acts by a generalized vasoconstriction that results in increased total peripheral resistance. Since arterenol is considered to be the physiological transmitter of most adrenergic nerves and responsible for the control of the blood pressure, it was suggested that it is a suitable drug for combatting hypotension due to decreased peripheral resistance. Churchill-Davidson administered arterenol intravenously to control the blood pressure in 69 patients. Owing to its instability it is kept in ampoules in an acid solution such as ascorbic or N/10 hydrochloric acid, and is added to isotonic sodium chloride solution just before use. The most convenient method of setting up the infusion is to add 4 ml. of 1:1,000 arterenol (4 mg.) to 1 liter of isotonic sodium chloride solution, or 2 ml. of 1:1,000 arterenol to 0.5 liter. This gives a solution with a strength of 4 μg per ml. of physiologic solution of sodium chloride. The drip rate is then tested to find out how many drops falling into the inspection chamber are equivalent to 1 ml. With most transfusion apparatus this appears to be between 15 and 25 drops. The average dose required for a healthy subject weighing 70 kg. is 20 μg a minute, but may vary from 5 to 35 μg a minute according to the level at which the blood pressure is controlled. The infusion is started slowly (30 to 40 drops a minute), and is increasd gradually at one minute intervals until the optimum level of blood pressure is obtained. A sensitivity may be shown by hypertensive patients, and small doses will maintain a constant level of pressure. Larger doses than usual are necessary after using pentamethonium or hexamethonium compounds. The blood pressure was maintained at the required level in every case. The results of this clinical trial indicated that the intravenous infusion of arterenol might be of advantage in the following conditions: pheochromocytoma; profound hypotension following the second stage of thoracolumbar sympathectomy; other surgical operations on patients with severe hypertension or disease of the coronary arteries; and collapse during spinal anesthesia, sudden severe hemorrhage, surgical operations on the heart, and following the use of pentamethonium or hexamethonium compounds.

## Canadian Journal of Medical Sciences, Ottawa

29:263-274 (Dec.) 1951

*Diagnostic Cultures of Tubercle Bacilli in Modified Dubos' Medium. J. Konowalchuk and G. B. Reed.—p. 263.

**Cultures of Tubercle Bacilli.**—Comparative cultures from sputum in Lowenstein's solid and Dubos' fluid mediums indicate that growth of tubercle bacilli may be detected much earlier in Dubos' fluid than in any solid medium. Contamination with non-acid-fast bacteria, however, is a difficulty with sputum cultures in Dubos' medium. Contamination may be avoided by adding 1:1,000,000 gentian violet to the medium. This dye does not inhibit the growth of tubercle bacilli. Results of cultures can be determined more easily in solid mediums than in fluid mediums, and it is not suggested that fluid rather than solid mediums should be used in diagnosis of tuberculosis. On the other hand, use of fluid mediums as a supplement to cultures on solid mediums may be advisable. Since preparation of sputum is the same for inoculation of fluid and solid mediums, little extra work is involved in making solid and fluid cultures at the same time. Tentative conclusions may be drawn from microscopic examination of fluid medium cultures after 7 to 10 days' incubation, and confirmatory evidence may be obtained later from solid mediums.

## Journal of Clinical Pathology, London

4:393-516 (Nov.) 1951

*Findings from Lingual Scrapings Taken During Treatment with Chloramphenicol and Aureomycin. W. Tomaszewski.—p. 393.

Association of Eosinophilic Polyarteritis, Libman-Sacks Endocarditis, and Asthma with Diffuse Collagen Disease. M. Gillespie and A. Poteliakhoff.—p. 402.

Symptomatic Haemolytic Anaemia Associated with Ovarian Teratoma in a Child. E. C. Allibone and D. H. Collins.—p. 412.

Simple Method for Detecting Streptomycin-Resistant Tubercle Bacilli. P. Wildy.—p. 421.

Late Mannitol-Fermenting Strain and Rapidly Fermenting Variant of Shigella Flexneri Type Z. G. T. Cook.—p. 427.

Determination of Propylthiouracil in Urine with 2:6-Dichloroquinone-Chloroimide. R. A. McAllister.—p. 432.

Simplified Method for Estimating Carbon Monoxide in Blood with Volumetric Van Slyke Appartus. J. W. Nicholas.—p. 439.

Reaction of Haemophilic Plasma to Thromboplastin. R. Biggs and R. G. Macfarlane.—p. 445.

Prothrombin Consumption in Haemophiliac Kindred. R. L. MacMillan, C. Ezrin and A. Butler.—p. 460.

Slanted Capillary Method of Rhesus Blood-Grouping. B. Chown and M. Lewis.—p. 464.

Question of Rh Hapten. D. A. Osborn.—p. 470.

Action of *p*-Aminosalicylic Acid on Prothrombin Time in Man. A. L. Tárnoky and L. Steingold.—p. 478.

**Lingual Scrapings During Antibiotic Treatment.**—Previous investigation of side-effects of chloramphenicol and aureomycin have shown that changes were more frequent in the oral cavity than in other parts of the body; they consist of dryness of the mouth, throat manifestations, angular stomatitis, and changes in the oral mucous membranes. Striking changes were seen in the dorsum of the tongue; the commonest was the disappearance of the normal whitish coating with atrophy in the filiform papillae, and, in extreme cases, atrophic glossitis with redness and soreness of the tongue. The present paper describes microscopic examinations of lingual scrapings that were made before, during, and after treatment with chloramphenicol and aureomycin in 126 patients. In the majority of patients these antibiotics caused the disappearance of the normal bacterial flora and in the remainder the bacteria were diminished. In many patients yeast-like fungi (usually Candida albicans) replaced the bacterial flora. The fungi are profuse in hypertrophic glossitis, and scanty in the atrophic type. It is suspected that an antagonism exists in the oral cavity between bacterial flora and fungi. The increased number of leukocytes, which is particularly noticeable in atrophic glossitis, is probably a sign of inflammatory reaction to the fungal infection. Many patients whose tongue had a normal appearance and in whom the bacterial flora was still present had received vitamin B complex simultaneously with the antibiotics. In a few cases, however, acute oral lesions, resembling those of vitamin B deficiency, developed in spite of vitamin treatment. The striking similarity of the oral changes associated with antibiotic therapy to those of vitamin B deficiency has caused some authors to believe that these lesions are signs of vitamin B deficiency, but some factors make this doubtful. Recently it has been suggested that aureomycin and chloramphenicol might exert a blocking action on the intracellular metabolism and thus produce changes resembling those due to vitamin deficiency. At any rate there is evidence that normal bacterial flora is necessary for the healthy structure and function of the mucous membranes.

## Journal Neurol., Neurosurg. & Psychiatry, London

### 14:237-346 (Nov.) 1951

Hereditary Sensory Radicular Neuropathy. D. Denny-Brown.—p. 237.
Calcification of Corpus Striatum and Dentate Nuclei Occurring in a Family. J. Foley.—p. 253.
Centripetal Pathway from Bladder and Urethra Within Spinal Cord. P. W. Nathan and M. C. Smith.—p. 262.
Retrograde Axonal Changes of De-Afferentated Nucleus Gracilis Following Mid-Brain Tractotomy. P. Glees, J. Soler and R. A. Bailey.—p. 281.
Localization of Some Acid Phosphatases in Brain Tissue. D. Naidoo and O. E. Pratt.—p. 287.
Efferent Connexions of Human Prefrontal Region with Reference to Fronto-Hypothalamic Pathways. E. Beck, A. Meyer and J. Le Beau. —p. 295.
Anomalous Horizontal Lamination of Nerve Cells in Supragranular Cortex of an Idiot Brain. M. C. H. Dodgson.—p. 303.
*Brain Abscess: Aspiration, Drainage, or Excision? O. V. Jooma, J. B. Pennybacker and G. K. Tutton.—p. 308.
Diffusion of Substances in Subarachnoid Spaces. G. B. Belloni.—p. 314.
Perceptual Patterns During Recovery from General Anaesthesia. J. Jaffe and M. B. Bender.—p. 316.
essation of Dreaming After Brain Injury. M. E. Humphrey and O. L. Zangwill.—p. 322.
Investigation of Psychiatric Aspects of Disseminated Sclerosis. R. T. C. Pratt.—p. 326.

**Treatment of Brain Abscess.**—The records of 295 patients who were treated for brain abscess at three centers in Britain were reviewed. Of the 177 survivors, 173 have been followed for from 1 to 26 years. Aspiration with or without decompression was done in 95 patients, of whom 58 (61%) died. Drainage by tube or marsupialization was employed in 89 patients, of whom 45 (50%) died. Excision with or without previous aspiration and/or decompression was carried out in 111 patients, of whom 15 (13%) died. The mortality rates with the different methods are not comparable, for in many of the cases in which excision was finally done the abscess had become chronic following repeated aspirations; at the time of the excision an apparent cure had already been effected, although papilledema or other signs persisted. In addition, many of the patients treated by aspiration alone were critically ill, and the aspiration was done when the patient was in extremis. The mortality rate without the use of penicillin was 53% and with penicillin 27%. The risk of increasing neurological deficits such as visual field defects was less with aspiration than with excision. The recurrence rate after aspiration or drainage was 8%. After excision there was no recurrence among 96 survivors. Postoperative epilepsy developed in 72 of 152 survivors of abscess of the cerebral hemisphere. Of these, five (all with abscesses in the frontal lobes) died in status epilepticus. In about two-thirds of the patients with postoperative epilepsy, the first fit occurred within 12 months of operation. The authors stress the value of prolonged anticonvulsant therapy after operation for brain abscess. The incidence of postoperative epilepsy in frontal lobe abscess was considerably higher after aspiration or drainage than after excision. The results were slightly better with excision, but treatment must be determined individually in each case.

## Journal of Pathology and Bacteriology, Edinburgh

### 63:557-800 (Oct.) 1951. Partial Index

Formation of Abnormal Diphtheria Antitoxin in Early Stages of Immunization. M. Barr.—p. 557.
Corynebacterial Endocarditis: Report of Case Due to Toxigenic Corynebacterium Diphtheriae. C. Pike.—p. 577.
Fatal Case of Giant-Cell or Temporal Arteritis. B. S. Cardell and T. Hanley.—p. 587.
Effect upon Growth of Rous Sarcoma of Diet Deficient in Vitamin E. D. B. Cater.—p. 599.
Experimental Production of Pulmonary Oedema with Ammonium Salts, Together with Classification of Lung Oedemas. G. R. Cameron and A. H. Sheikh.—p. 609.
Cardiac Lesions in Rabbits Following Injections of Horse Serum. T. Crawford and J. R. Nassim.—p. 619.
Ascaris Larva in Brain in Association with Acute Anterior Poliomyelitis. W. Beautyman and A. L. Woolf.—p. 635.
Incidence and Probable Significance of Pharyngeal Inclusion Bodies, with Special Reference to Their Presence in New-Born Infants. G. B. Ludlam.—p. 687.
Occurrence of Two Distinct Capsular Antigens in H. Influenzae Type e Strains. G. M. Williamson and K. Zinnemann.—p. 695.
Experimental Pulmonary Haemosiderosis. F. R. Magarey.—p. 729.

## Lancet, London

### 2:1189-1232 (Dec. 29) 1951

*Influenza: Study of Four Virus Strains Isolated in 1951. W. Smith, J. C. N. Westwood and G. Belyavin.—p. 1189.
*Treatment of Megaloblastic Anaemias with Citrovorum Factor. L. S. P. Davidson and R. H. Girdwood.—p. 1193.
Radiotherapy and Testicular Neoplasms. G. Boden and R. Gibb.—p. 1195.
Treatment of Human Ascariasis with Hetrazan: Use of Syrup Containing 1-Diethylcarbamyl-4-Methyl Piperazine Dihydrogen Citrate (Hetrazan). E. H. Loughlin, I. Rappaport, A. A. Joseph and W. G. Mullin. —p. 1197.
Simplified Method of Estimating Formaldehydogenic Corticosteroids in Urine. J. Rabinovitch, J. Decombe and A. Freedman.—p. 1201.
Infestation of Human Brain with Coenurus Cerebrailis: Report of Fourth Case. B. J. P. Becker and S. Jacobson.—p. 1202.
Control of Pertussis in Day-Nursery Contacts with Chloramphenicol. A. Bogdan.—p. 1204.

**Four New Influenza Virus Strains.**—Of the four strains of virus with which this report is concerned, strains M. W. and HAL were obtained from a medical student and a house physician, strain N. G. from a patient, and strain Iris from a laboratory worker. All patients had typical influenza, with chills, malaise, upper respiratory symptoms, and a fever lasting about five days. All strains were isolated by amniotic inoculation of developing chick embryos. Allantoic adaptation of the strains was initiated by inoculation of 0.2 ml. of infected amniotic fluid into the allantoic cavities of 10-day embryos and incubation for three days at 36 C. Strains HAL and N. G. adapted without difficulty and have been maintained by serial passage of allantoic fluids, but M. W. and Iris died out on serial allantoic passage. The standard reference viruses used were influenza A, PR8; influenza A-prime, F. M. 1; and influenza B, Lee. The four new virus strains proved to be closely related antigenically to each other and to the standard A-prime reference strain F. M. 1. The new strains differ from other influenza viruses by their susceptibility to a second hemagglutination inhibitor contained in normal rabbit serum. This second inhibitor is termed β inhibitor to distinguish it from the normal type (α inhibitor) which is active against most strains of virus. The two inhibitors show qualitative differences in their action against viruses and their susceptibility to destruction by receptor-destroying enzymes. Two of the new strains are virulent for the chick embryo, causing its death after amniotic inoculation. They are also readily adaptable to mice. One strain showed evidence of neurotropism. In the study of epidemic strains of influenza virus, attention is usually focused upon their antigenic constitution, to the exclusion of other properties, but this may be misleading. The strains isolated during the 1951 epidemic could not be distinguished as a group from the standard A-prime virus strain F. M. 1 by antigenic analyses based upon either the hemagglutination-inhibition or complement-fixation techniques. Nevertheless, they are as clearly distinguishable from it as they are from the antigenically dissimilar influenza A, PR8, and influenza B, Lee viruses by their reactions with normal rabbit serum inhibitors. At present, rapid isolation of influenza viruses in cases occurring all over the world, followed immediately by their serological typing, is largely relied on for epidemiological information and for control measures. The authors suggest that antigenic analyses should not be unduly stressed and that other aspects of the biologic behavior of freshly isolated strains are equally important.

**Citrovorum Factor in Megaloblastic Anemia.**—Davidson and Girdwood state that in a previous communication they described three patients with pernicious anemia treated with single intramuscular injections of a preparation of the growth factor for the streptococcus Leuconostoc citrovorum. The relationship of citrovorum factor to folinic acid was described. At that time they believed that the material used had been prepared from a biologic source, but they have since been informed that it had been synthesized. They now report that they obtained a good clinical and hematological response in six cases of addisonian pernicious anemia and two cases of megaloblastic anemia of pregnancy with a synthetic citrovorum factor ("leucovorin") administered by injection and by mouth. The effects produced in one case of idiopathic steatorrhea were much less striking. The structure of "leucovorin" is said to be 5-formyl-5,6,7,8-tetrahydropteroylglutamic acid.

## Medical Journal of Australia, Sydney

2:725-760 (Dec. 1) 1951

Analysis of 150 Cases of Rheumatoid Arthritis. L. J. A. Parr.—p. 725.
Observations on Use of ACTH and Cortisone in Treatment of Rheumatoid Arthritis. L. Wedlick.—p. 737.
Physical Therapy in Treatment of Varicose and Other Indolent Leg Ulcers. H. Halper and M. Robertson.—p. 741.
Meig's Syndrome, with Report of Case in Connexion with Ovarian Dermoid Cyst. R. M. Crookston.—p. 743.

## New Zealand Medical Journal, Wellington

50:433-536 (Oct.) 1951

Current Concepts Concerning Hormonal Control of Blood Picture. F. W. Gunz.—p. 435.
Synovial Sarcoma, with Report of Four Cases. N. W. Nisbet.—p. 441.
Conservative Reconstruction of Tracheal Collapse Following Surgery of Thyroid: Report of Case. S. Barclay.—p. 455.
Observations on Occurrence and Clinical Course of Tinea Capitis and Corporis in Otago. M. J. Marples.—p. 460.
Acute Porphyria with Causalgic Features: Report of Case. C. M. Todd and D. J. A. Gallagher.—p. 480.
Reconstruction of Scrotum and Penile Skin: Report of Case. F. L. Hutter.—p. 485.
*Clinical Uses of Electroencephalography. D. W. Rowntree.—p. 488.
Lymphogranuloma Venereum: Report of Case. D. W. A. Rodwell and S. Faine.—p. 495.
Cardiac Arrest and Massage: Report of Case. S. Barclay.—p. 500.
Sebaceoma Nasi, Adenoma Sebaceum (Rhinophyma). H. P. Pickerill.—p. 502.
Spontaneous Haematoma of Rectus Sheath: Report of Two Cases. J. B. Lovell-Smith.—p. 506.

**Clinical Uses of Electroencephalography.**—Electroencephalography is of value in the diagnosis and localization of space occupying brain lesions, in the diagnosis and classification of epilepsy, and in the localization and prognosis of head injuries. It is of some value in certain organic diseases of the nervous system, mainly as an index of cortical involvement, in the diagnosis of mental diseases with an organic basis, in medicolegal cases, and in the diagnosis of barbiturate intoxication. It is of little value in differential diagnosis of functional nervous and mental disorders, does not indicate loss of brain tissue, and is not a measure of intelligence. Electroencephalography is just another laboratory procedure and should be regarded as skeptically as any other test in which results depend on machine, technician, and interpretor.

## Nordisk Medicin, Stockholm

46:1739-1778 (Nov. 21) 1951. **Partial Index**

*Corticotropin (ACTH) Treatment of Disseminated Sclerosis. T. Fog.—p. 1742.
Tuberculin Tests with Addition of Hyaluronidase. E. Eilertsen.—p. 1748.
Early Treatment or Prophylaxis in Thromboembolism. L. G. Hallén.—p. 1752.
Action of Salicylates on Circulatory Organs: Two Cases with Acute Salicylate Intoxication with Pathologic Electrocardiogram. H. Laake.—p. 1756.

**Corticotropin Treatment of Disseminated Sclerosis.**—Disseminated sclerosis is a mesenchymal disorder in which treatment with corticotropin (ACTH) and cortisone is being studied. While the action of these substances is on the whole not clear, antibody production and histiocytic activity appear to be reduced. Fog describes the adrenal reaction to corticotropin and the related variations in the clinical course in 20 cases of disseminated sclerosis in which treatment was given in the neurological department of the Kommunehospital during the past year. In 14 cases the 17-ketosteroid excretion was measured daily. A marked increase in the excretion was accompanied by notable improvement in all but one case, in which, however, there was undoubted improvement. No marked clinical improvement was seen in cases with slight steroid reaction. Good initial improvement was shown by the 17-ketosteroid excretion in 11 cases and in four other cases by other criteria. In three the effect was slight and in two uncertain. In 12 cases in which the 17-ketosteroid reaction was measured during intermittent treatment, good reaction occurred in only 4 cases, diminishing reaction in 8. In one case use of a different corticotropin preparation led to renewed increase in 17-ketosteroid excretion. Increase in dosage did not increase 17-ketosteroid excretion. The results of the investigation support the view that disseminated sclerosis is a mesenchymal disorder in the sense that the changes in the nervous parenchyma are secondary to an abnormality in the function of the interstitial tissue.

## Proceedings of Royal Society of Medicine, London

44:983-1068 (Dec.) 1951. **Partial Index**

Benign Strictures of Extrahepatic Bile Ducts. H. K. Gray.—p. 1005.
Anatomy of Eighth Cranial Nerve in Man. C. C. D. Shute.—p. 1013.
Mechanism of Swallowing. G. M. Ardran and F. H. Kemp.—p. 1038.
Propagation of Strains of Foot-and-Mouth Disease Virus in Unweaned White Mice. H. H. Skinner —p. 1041.

## Riforma Medica, Naples

65:1213-1240 (Nov. 10) 1951

Genesis of Remissions in Malaria Infections. M. Ascoli and G. D'Alessandro.—p. 1213.
*Hepatitis with Jaundice in Patients with Pulmonary Tuberculosis: Considerations. E. Tagliaferro.—p. 1218.
Effect of Thiosemicarbazone in Treatment of Specific Serositides. C. Giova—p. 1226.

**Viral Hepatitis with Jaundice in Tuberculous Patients.**—Hepatitis with jaundice was observed in 24 hospitalized patients who had pulmonary tuberculosis of varying duration and form and in different stages of treatment. Severe pains in the joints and extremities preceded the onset of the disease. Clinical characteristics were hepatocellular jaundice, slight fever, enlargement of the liver and spleen, lymphomonocytosis, and leukopenia. Acholia was never complete. A differential diagnosis between tuberculous hepatitis with jaundice, hepatocholangeitis, and enterohepatitis was difficult. The disease, however, occurred in four or more patients within the same period. A diagnosis of post-transfusion hepatitis was considered, but during the time in which the disease developed in three of the author's patients, the author himself fell ill. His illness was characterized by the same symptoms and followed the same course. Diagnosis was made of benign epidemic hepatitis due to a virus that causes a lesion in the liver mesenchyma and leads to jaundice when an hepatotropic enterogenous toxic action is present. The disease, that may have been transmitted by direct contact, parenterally, or through the gastrointestinal tract, appeared and regressed spontaneously, lasting for from three to seven weeks. In all patients and in the author the severe arthritic pains that had not responded to any treatment regressed when jaundice appeared. According to the author, in the presence of icterus there are tissue chemical modifications that have a beneficial effect on these pains. The functional relationship between the liver, the hypophysis, and the adrenals is discussed.

## Schweizerische medizinische Wochenschrift, Basel

81:1233-1264 (Dec. 15) 1951. **Partial Index**

Problem of Treatment of Acute Leukemias. A. Alder.—p. 1233.
Effect of Vitamin $B_6$ (Pyridoxine) and of Pteroylglutamic (Folic) Acid on Neutropenia Due to Poisoning by Benzene. H. Dubois-Ferrière.—p. 1235.
Early Results of Treatment with Isotopes in Patients with Diseases of the Blood. H. R. Renfer, C. Maier and J. H. Müller.—p. 1237.
*Studies on "Constitutional Thrombopathy" of v.Willebrand-Jürgens Type in Inhabitants of Åland Islands. R. Jürgens and H. Forsius.—p. 1248.

**Constitutional Thrombopathy.**—In 1932 constitutional thrombopathy was reported in relatives with a hereditary hemorrhagic diathesis among the inhabitants of the Åland islands near the Finnish coast in the Baltic sea. The continuance of this constitutional thrombopathy in five related families has been established by studies in 1949 and 1950. Of 200 family members examined, 26 were bleeders, with hemorrhages of the skin and the mucous membranes, muscle hematoma, and hemorrhages of genitalia, joints, retina and conjunctiva. The bleeding time was prolonged, occasionally up to 58 minutes; such vascular signs as the pinching phenomenon, Rumpel-Leede phenomenon, and capillary resistance tests were positive; counts of thrombocytes and megakariocytes were normal, but the thrombocytes were morphologically abnormal. Results of Quick's prothrombin consumption test were positive in several cases. The recalcification time was partly delayed, particularly in thrombocyte-free plasma of normal persons or in the plasma of the patients to which thrombocytes with defective agglutination obtained from the patients had been added. Thrombelastograms according to Hartert's technique revealed considerably reduced thrombus elasticity, delayed thrombus formation time, and somewhat prolonged coagulation time. The pathogenesis of hemorrhages in patients with constitutional thrombopathy depends not only on vascular changes demonstrated by the positive vascular signs but also on the defective agglutination of the thrombocytes and on the resulting disturbances of coagulation in its first phase, when the thromboplastin is activated.

## Semaine des Hôpitaux de Paris

27:3817-3878 (Dec. 26) 1951. **Partial Index**

Roentgentherapeutic Changes of Mammary Epitheliomas in Women: Histopathological Study. R. Huguenin and R. Gérard-Marchant.—p. 3817.
Clinical, Biological and Anatomic Study of a Case of Cushing's Syndrome. L. Justin-Besançon, H. P. Klotz, Contamin and J. Villiaumey.—p. 3825.
Angiopneumographic Study of 60 Cases of Bronchial Cancer: Diagnosis and Operability. A. G. Weiss and J. Witz.—p. 3834.

**Angiopneumographic Study of Bronchial Cancer.**—Angiopneumograms were made for 60 patients with bronchial carcinoma. Although alterations such as distortion, stenosis, and finally complete obstruction of the pulmonary arteries and their branches can be demonstrated by this method, these changes alone do not differentiate malignant from nonmalignant tumors. Consequentially for early diagnosis of bronchial cancer, bronchoscopy combined with aspiration biopsy may be preferred to angiopneumography. By demonstrating signs of inoperability of vascular origin, angiopneumography, however, is of greatest value in the planning and conduct of operation. This method makes it possible to evaluate the involvement of the vena cava superior and the extent of the invasion of the mediastinum by the tumor. The lesions of the vena cava superior are of particular significance for cancer of the right lung, and this lung was involved most frequently in the authors' cases. Angiopneumography also makes it possible to establish whether complete obstruction of the pulmonary artery by the tumor was limited to the lobe containing the tumor, or whether the tumor has caused alterations of other branches or of the main trunk. By determining the site of complete obstruction of the main trunk in relation to the hilus and to the bifurcation of the pulmonary artery, the surgeon may be able to evaluate the chances for ligating the pulmonary arteries in the course of pneumonectomy. In inoperable cases the patients may thus be spared the risk of exploratory thoracotomy.

## Wiener klinische Wochenschrift, Vienna

63:935-950 (Dec. 14) 1951. **Partial Index**

*Problem of Potassium Intoxication Due to Increased Serum Potassium Concentration Resulting from Transfusion of Preserved Blood. R. Kühlmayer.—p. 937.
*Clinical Experiences with Vitamin $B_{12}$ Therapy. E. E. Reimer.—p. 941.

**Potassium Intoxication from Transfusion of Preserved Blood.**—The potassium content of 20 samples of preserved blood was determined at two or three day intervals for three weeks after the withdrawal of blood. Results confirmed the observations by other investigators that the amount of potassium in the plasma increased considerably during the storage of blood outside the organism because of the passage of potassium from the erythrocytes into the plasma. This passage of potassium cannot be prevented by any of the methods of blood preservation. Paresthesias, flaccid paralysis of the extremities, and paresis of respiratory muscles are the characteristic symptoms of potassium intoxication that may appear with a potassium plasma level of 30% to 35% mg. Usually there is little risk of potassium intoxication in administering stored blood, since 78% of the administered potassium is taken up. The risk of potassium intoxication, however, becomes greater when the rate of blood infusion is increased to more than 350 cc. per minute and the total amount administered exceeds 500 to 600 cc. Administration of preserved blood with increased potassium concentration to patients with disturbances of metabolism and with tissues completely saturated with potassium may also increase the risk of potassium intoxication because the ion concentrates only within the plasma compartment. But in both these situations potassium intoxication may be prevented by administration of calcium.

**Clinical Use of Vitamin $B_{12}$.**—Based on treatment of more than 100 patients with pernicious anemia with vitamin $B_{12}$, a dose of 120 to 180 μg depending on the severity of the anemia and the associated neurological symptoms, may be required for recompensation. Several daily doses of 30 μg seem to exert a better antianemic effect than one massive dose. In 30 patients subjected to continued treatment, a monthly maintenance dose of 40 μg (in divided doses of 20 μg every two weeks) was required to obtain erythrocyte counts of 4,000,000. These patients had been treated previously for years with various liver preparations, and their average erythrocyte count varied from 3,500,000 to 3,800,000. Several of these patients were treated with vitamin $B_{12}$ for more than two years without requiring increasing doses, while increasing doses of folic acid were required for maintenance. The subjective well-being of all the patients was pronounced, and increases in weight and in mental alertness were observed frequently. Larger maintenance doses up to two times the usual dose are indicated in elderly patients with hypoproteinemia or neurological manifestations. Fifteen patients with pernicious anemia of more than three years' duration whose blood values decreased markedly following discontinuation of the liver maintenance dose were subjected to a therapeutic trial with orally administered tablets containing 5 μg of vitamin $B_{12}$, 1 mg. of folic acid, and 0.25 gm. of extract of stomach mucous membrane. Four tablets were given daily for four months. Although this follow-up is too short for definite evaluation of the maintenance therapy, three to four tablets stabilized the blood values and increased the red blood cell count to 4,000,000, which had never been reached previously. The subjective well-being of the patients was remarkable, and neurological manifestations did not occur. Fairly normal conditions of absorption are indispensable for oral treatment with vitamin $B_{12}$. Parenteral administration of vitamin $B_{12}$ is recommended in patients with intercurrent infections, hypoproteinemia, severe diarrhea, and neurological manifestations. In 10 patients with decompensated pernicious anemia and associated mild to severe herpes zoster, highly satisfactory results with disappearance of the cutaneous manifestations and the neuritic complaints were obtained with four or five massive doses of from 30 to 60 μg of vitamin $B_{12}$.

# BOOK REVIEWS

**The Pathogenesis of Tuberculosis.** By Arnold R. Rich, M.D., Baxley Professor of Pathology, Johns Hopkins University School of Medicine, Baltimore. Second edition. Cloth. $15. Pp. 1028, with 93 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, 1951.

The generous appreciation accorded the first edition and the Spanish translation of Rich's text, "The Pathogenesis of Tuberculosis," has justly prompted the revision for a second edition. The author is qualified owing to his personal studies and his ability as a teacher to present this distinctive volume. Attesting the high quality and accuracy of evaluation and interpretation of this subject by the author is the factual retention of the major basis of the subject matter elaborated mainly by recent acquisitions of knowledge. The entire book was reread in a search for any areas in which new information warranted amplification or modification of the views expressed, and new material containing the essence of 74 additional references was inserted. The ease of finding each specific section and the many cross references to the subject matter and illustrations have been improved by the insertion of the pertinent page numbers in each instance. Aside from providing a sound background for practical application, a survey to determine the actual limits of the existing knowledge serves to bring into focus the problems that require further investigation. Prior to this text, no unified modern critical survey existed concerning present knowledge of the fundamental principles of tuberculosis and the factors that influence the disease. This book attempts to present, in a clear and orderly manner, the basic factors and principles that influence the occurrence of tuberculous infection or determine its progression or arrest. It also carefully examines the evidence relating to those matters, and, from that analysis, attempts to define the present limits of our knowledge regarding the influence of each of those factors upon the pathogenesis of the disease. Since the aim of this book is to define the limits of present knowledge, the writer has provided the reader with published evidence pertaining to every statement of importance that the book contains. The chapters cover the relation of the chemical constituents of the tubercle bacillus to pathogenesis, the different types of tubercle bacilli, the variations in form and potentialities of the tubercle bacilli, the nature and effects of virulence, native resistance (species and racial, individual, heredity, and influence of sex and age), the mechanism of native resistance and of native local tissue resistance, hypersensitivity, desensitization, acquired resistance (among them, mechanism and the role of antibodies), factors that influence resistance, influence of number of bacilli, factors responsible for characteristics of lesions and symptoms, exogenous or endogenous reinfection, application of principles of pathogenesis, and the decline in mortality from tuberculosis and the outlook for the future.

The volume supplies an exhaustive and elucidating revelation of the intricacies of tuberculosis applicable to scientific and practical interpretations by a capable author. It should be read by all students of medicine as an interpretation of one of the most important diseases.

**The Medical Annual: A Year Book of Treatment and Practitioners' Index.** Sixty-ninth year, 1951. Editors: Sir Henry Tidy, K.B.E., M.A., M.D., and A. Rendle Short, M.D., B.S., B.Sc. Cloth. $7. Pp. 420, with illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; John Wright & Sons, Ltd., 42-44, Triangle West, Bristol 8, England, 1951.

Each year this review of medicine and surgery presents the opinions of leading British authorities on recent advances in therapy that have been reported since publication of the previous year's edition. This edition has 44 contributors, including experts in all of the specialties. The arrangement is the same as that of previous issues: an introduction by the editors, with sketches of the principal advances made; a detailed review of the year's work, alphabetically arranged according to subject, with pertinent references; a practitioners' index to recently available pharmaceutical preparations, dietary supplements, and various appliances; a list of English and American medical books published during the year; a general index, with the most important subjects indicated in bold type. Despite its primary emphasis on treatment, the book includes new information on epidemiology, diagnosis, and other topics of significance to medicine. The editors' introduction includes a comment upon legal decisions rendered under the British National Health Service Act. The review section contains an article explaining the origin and functions of the World Health Organization. Therapeutic agents are critically considered, although some of the contributors have reserved their opinions on certain newer drugs developed in the United States, pending their introduction and use in the United Kingdom. Not all American observers will agree that antibiotics other than penicillin may be preferred for the treatment of acute gonorrhea, or that penicillin has no advantage over silver nitrate in the prevention of ophthalmia neonatorum.

As in preceding issues, the critically presented information in the review is marred by the inclusion of manufacturers' advertising of pharmaceutical products. In one instance, the manufacturer of a preparation of alpha tocopherol is permitted, as he was in the 1950 edition, to make reference to an article in this edition that is justly critical of claims for the use of vitamin E therapy in heart disease. In addition to the general index, the book includes a classified index of advertisements, an index of advertisers, and an index of books advertised in the publication. The book will be useful chiefly to British general practitioners who desire a convenient reference to recent developments in therapy. In view of its strictly British origin and point of view, it is not likely to appeal to American physicians.

**La talassemia (morbo di Cooley e forme affini).** Di G. Astaldi, P. Tolentino e C. Sacchetti. Prefazione di P. Introzzi e G. de Toni. XII, Biblioteca *Haematologica* fondata da A. Ferrata. 2,500 lire. Pp. 229, with illustrations. Pavia: Tipografia del Libro, 1951.

This monograph is one of a series entitled Biblioteca Haematologica founded by Adolfo Ferrata, who was considered to be the leader in Italy in the field of morphological hematology. The authors recognize three types of thalassemia. Thalassemia minor and thalassemia minima are the less severe types and occur in adults who have had only one parent who carried the gene for the anomaly. These two types are not fatal, although the characteristic pathological and clinical features seen in the major type (Cooley's anemia) are present in a modified form. Thalassemia major is the fatal form of the disease that may develop in a child when both of its parents carry the proper gene.

Photographs of adults with the minima type and of children with the major type, and roentgenograms showing the characteristic bony perpendicular striations of the skull and the extreme osteoporosis of long bones and vertebrae of thalassemia major are included. There are also microphotographs of blood cells and cells from marrow aspirations. Myelograms are presented for the three types of thalassemia. One table compares myelograms of the three types with those of normal adults and normal children. The monograph contains many tables and graphs, including those giving comparisons of the variability of erythrocyte diameters and of cytoplasmic-nuclear ratios with normal variability, a mitotic index and karyokinetic histiogram, and one showing the asynchronism of development of the cytoplasm and nuclei of erythroblasts. Several chapters are devoted to the clinical pictures, diagnosis, and prognosis of the various forms of the disease and the therapy for them and differential diagnosis between them. In the chapter on therapy it is stated that there is no effective treatment, although splenectomy has been of temporary benefit in some cases. The second part of the monograph deals with the physiopathology of erythropoiesis in thalassemia. It is illustrated with many graphs, and has information on bone marrow activity, proliferation and differ-

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The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

entiation of erythroblasts, influence of plasma factors on proliferation and differentiation, erythropoiesis compared with destruction of erythrocytes, and the influence of the spleen.

The essential results of this investigation are described in a well-written 12-page English summary. This is followed by a very extensive bibliography of the international literature on the subject. This is one of the most extensive and detailed studies of this condition that has been made. Anyone interested in the disease should not fail to consult this volume, even though he cannot read the Italian language.

**Diagnosis and Treatment of Menstrual Disorders and Sterility.** By Charles Mazer, M.D., F.A.C.S., Consulting Gynecologist, Mount Sinai Hospital, Philadelphia, and S. Leon Israel, M.D., F.A.C.S., Assistant Professor of Gynecology and Obstetrics, Graduate School of Medicine, University of Pennsylvania, Philadelphia. Third edition. Cloth. $10. Pp. 583, with 137 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1951.

In this edition the authors add an explanation of the menstrual toxin theory, new data about carcinoma of the cervix, and discussions on the present concept of the genesis of the menopausal syndrome, the medical treatment of endometriosis, and the current concept of the role the luteotropic hormone plays in the physiology of menstruation. The authors believe that there is not sufficient proof to support the generally accepted opinion that dysmenorrhea occurs only in women who ovulate. In fact, they believe that contrary evidence exists. Diethylstilbestrol is commonly used to prevent dysmenorrhea, but only 4 of the authors' 29 patients who had dysmenorrhea were permanently benefited by this hormone therapy.

The section on premenstrual tension is excellent, but the reason for mentioning such a radical procedure as irradiation of the pituitary gland and the ovaries for treating a relatively simple complaint that can easily be overcome by treatment with ammonium chloride or small doses of androgen is not clear. The authors have been enthusiastic about low dose irradiation of the pituitary gland and ovaries of women who are amenorrheic and sterile. They report that 473 patients were treated in this manner. A follow-up revealed that 64% of the women who complained of secondary amenorrhea had normal menstrual periods after treatment. On the other hand, only 2 of the 22 patients with primary amenorrhea responded to low dosage irradiation therapy. In regard to increasing the possibility of conception, the authors favor precoital alkaline douching during the fertile phase of the menstrual cycle because they believe it increases the number and vitality of the spermatozoa that reach the cervical canal and the uterine cavity. They also believe that equine gonadotropin is useful in cases of sterility due to absence of ovulation. They observed 17 pregnancies in 45 women in whom they used this treatment when absence of ovulation was the major cause of barrenness. In addition, pregnancy occurred in 16 of 40 women whom they had treated with combined chorionic gonadotropin and anterior pituitary extract.

This book reflects the considerable experience that both authors have had in treating menstrual disorders and sterility. The data are well presented in a clear, lucid style. There is a well-selected list of references at the end of each chapter, and there is an appendix that lists the commercially available endocrine products. There are many instructive illustrations throughout the text. This edition will undoubtedly prove to be as popular and helpful as the previous editions.

**Endocrine Diagnosis.** By H. Ucko, M.D. Cloth. $8.50. Pp. 513, with 84 illustrations. Staples Press, Ltd., 70 E. 45th St., New York 17; Staples House, 83 Great Titchfield St., London, W.1, 1951.

In the last few years, a number of excellent books on clinical endocrinology have been published. Dr. Ucko's volume, however, is distinctive and offers certain advantages that are not offered by most of the other books. It deals mainly with the differential diagnosis of endocrine signs and symptoms and the diagnosis of endocrine diseases. In the section on the differential diagnosis of endocrine signs and symptoms, there are instructions for taking an adequate history, especially with reference to endocrine disorders; this is systematically discussed and is most complete in its scope. These discussions contain not only descriptions of the various pathological changes, but also include the physiological relationships and mechanisms involved in the production of these signs and symptoms. In addition, there is a liberal supply of photographs illustrating the more important features and various tables on growth, weight, and physical measurements. Roentgenograms and diagnostic charts enhance the value of the book. The experimental work leading to the knowledge of the clinical conditions is discussed in considerable detail, with appropriate references to articles on which the information is based. These references are not too encyclopedic and, thus, are not confusing. A similar system is used in discussions of the clinical findings.

Section 2, which describes the diseases of the endocrine glands, contains complete information that is only obtainable by extensive examination of the literature. In the various diseases discussed in this section, the following system of presentation is used: (1) symptomatology, (2) diagnosis, (3) laboratory aid to diagnosis, and occasionally, (4) additional laboratory findings, as well as (5) special diagnostic tests. Each disease i discussed from the standpoint of the physiological processe underlying the disorder, so that the reader can obtain a workin basis for understanding the mechanisms involved. The author i a physician with much experience in the practice of endocrin ology, and he understands the various problems that arise. Th gives the book a different perspective than those written by me who have been preeminent in endocrine research but whose co tact with clinical endocrinology has been either through exper mentation or through clinical consultations. Since the volun was written by one author, the pitfalls of reduplication of m terial have been avoided. This volume should be useful to t medical practitioner and specialist in endocrinology.

**Vorlesungen über die Tuberkulose des Kindes und Jugendlichen.** V Professor Dr. med. Werner Catel. Cloth. $3.80; 16 marks. Pp. 207, w 70 illustrations. Georg Thieme, Diemershaldenstrasse 47, (14a) Stuttgart 1950.

This text presents briefly to students and physicians an over picture of childhood and juvenile tuberculosis in considerati of recent advances from the standpoint of immunobiologic a therapeutic fields. The 15 chapters cover many aspects of subject, including a consideration of the tubercle bacillus a infection, tuberculin and the testing of hypersensitiveness, i munobiologic evaluation, tuberculosis and the nervous syste climatic factors and the irritability of the nervous system, ferential roentgen pulmonary findings, stage classification tuberculosis, forms of generalization, the tertiary (phthisic) sta the tuberculous child (general symptomatology), prophyla therapy (general, medicaments), surgical and orthopedic tre ment, and special handling of various forms of tuberculosis.

The volume is printed in German and presented on high gr paper, with good halftone illustrations. It will appeal to phy cians and students interested in a text on tuberculosis in child and able to read German. The book is well prepared and is p sented by a capable teacher and author.

**Fortschritte der Tuberkuloseforschung. IV.** Redigiert von H. Birkhä *und* H. Bloch. Mitarbeitter: F. Bernheim et al. [In German, English French.] Sonderausgabe von Fasc. 5 der Bibliotheca tuberculosea. Sup menta ad Schweizerische Zeitschrift für Tuberkulose. Cloth. 43.70 S francs. Pp. 308, with illustrations. S. Karger, Holbeinstrasse 22, Ba 215 Fourth Ave., New York 3, 1951.

This is a compilation of eight subjects written by hig qualified authors and printed in English and French. It is monograph form and discusses the modern conceptions of s cialized subjects in tuberculosis. These include metabolism mycobacteria, enzymology of the genus Mycobacterium, el tron-microscopic studies of cellular morphology of tuber bacilli, pathogenic and allergic effects of dead tuberculous bac in liquid petrolatum, bacteriological and immunologic aspe of BCG vaccination, pathogenesis of postprimary tubercul in relation to chronic pulmonary tuberculosis (phthisis), in vi effect of tuberculin on cells, and new approaches to the study experimental infection. Most of the monographs contain suita summaries and/or conclusions common to scientific periodic

For those interested in scientific aspects of tuberculosis tubercle bacilli, this volume will prove valuable for bringing subjects up-to-date. Since it has been printed mostly in Engl it will appeal to Americans and English speaking scientists physicians. It is presented in good form and has durable bind and paper. With the previous three volumes, it is a valuable adjunct to scientific knowledge of tuberculosis. Originally it appeared as a supplement to the Swiss *Zeitschrift für Tuberkulose*.

**Incontinence in Old People.** By John C. Brocklehurst, M.D., Major R.A.M.C. With foreword by Stanley Alstead, M.D., F.R.C.P., Regius Professor of Materia Medica and Therapeutics, University of Glasgow, Glasgow. Cloth. $6.50. Pp. 191, with 62 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; E. & S. Livingstone, 16 and 17 Teviot Place, Edinburgh 1, 1951.

Dr. Brocklehurst has presented his experiences with, and his conclusive studies of incontinence in old persons. His book is divided into three sections. He gives a studious review of the normal anatomy and physiology of micturition in the first section. A review of the previous literature is included. The second section of the book is devoted to the etiology of neurogenic bladders. The third section describes their care. Uninhibited bladders were found to be present in every patient who was incontinent. The loss of upper motor neuron control allows ineffectual contraction of the detrusor muscle to incompletely empty the bladder. Most of these persons were able to compensate, until they became bedfast.

The practical value of this entire work lies in the author's description of the ultimate in the care of the incontinent patients. The progressive steps in the development of his method are entertainingly presented. He has caused orderly, hygienic care to replace the chaotic, miserable existence of both patients and attendants. The last section of the book is an excellent source of information and instruction for the attendants of the patients. The attendants will have little enthusiasm for the didactic exposé of the first sections.

An adequate bibliography is presented. The text is profusely augmented with illustrations. This book has a limited field of usefulness, but it is recommended for the libraries of institutions and attendants who must cope with incontinent old persons.

**Phase Microscopy: Principles and Applications.** By Alva H. Bennett, Helen Jupnik, Harold Osterberg and Oscar W. Richards. Cloth. $7.50. Pp. 320, with illustrations. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16; Chapman & Hall, Ltd., 37-39 Essex St., Strand, London, W.C.2, 1951.

This book is the work of four scientists who specialize in different aspects of phase microscopy. In it they discuss advances that various investigators have made since the application, in 1935, of the phase contrast method to microscopy. The volume is divided into seven chapters, which include a brief introduction and discussions on elementary and advanced theory of phase microscopy, instrumentation, techniques, and applications in biology, medicine, and industry. The diagrams and illustrations are helpful both in the discussion of theory and in showing the advantages of the phase microscope. The book would be of interest to anyone working in a branch of medical research that requires the use of a microscope, since it includes much investigative material that may suggest useful application to similar problems. A bibliography and an author-subject index are included in the volume.

**The Approach to Cardiology.** By Crighton Bramwell, M.A., M.D., F.R.C.P., Professor of Cardiology in the University of Manchester, Manchester, England. With foreword by A. V. Hill, C.H., O.B.E., Sc.D., Foulerton Research Professor of Royal Society. Oxford Medical Publications. Cloth. $3.75. Pp. 122, with 66 illustrations. Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Sq., London, E.C.4, 1951.

This book is written primarily for the medical student who has just completed his basic medical education and is about to apply what he has learned to the patient in the hospital or clinic. It is a fortunate student who, at this stage of his medical education, has a teacher of such rare understanding and sympathy as Dr. Bramwell to guide him. Dr. Bramwell, with an excellent background in physiology and medicine, has, since 1943, given lectures to the senior medical students at Manchester Medical School in England on the subject matter now presented in book form. The medical student is shown clearly the relationship between hemodynamics as learned in the laboratory and clinical cardiology as seen in the patient. Although neither a manual nor a textbook of cardiology, this small volume manages to include within its covers a considerable amount of useful information. It has excellent chapters on cardiac enlargement, valvular lesions, the pulse, cardiac arrhythmias, heart failure, and the etiology of heart disease. Many well-chosen illustrations are placed conveniently throughout the text. The author has consistently adhered to his original purpose, as expressed in the preface, "to illustrate some of the fundamental general principles of cardiology in relation to the preclinical sciences." Although written for the undergraduate medical student, the busy practicing physician will find this book on cardiology helpful in his constant struggle to keep up with advances in basic medical science. For the heart specialist, however, this book is too elementary.

**Surgical Treatment of the Motor-Skeletal System.** Supervising editor: Frederic W. Bancroft, A.B., M.D., F.A.C.S., Professor of Clinical Surgery, New York Medical College, New York. Associate editor: Henry C. Marble, A.B., M.D., F.A.C.S., Consultant, Massachusetts General Hospital, Boston. Part One: Deformities, Paralytic Disorders, Muscles, Tendons, Bursae, New Growths, Diseases of Bone and Joints, Amputations. Part Two: Fractures, Dislocations, Sprains, Muscle and Tendon Injuries, Birth Injuries. Second edition. Cloth. $24, per set. Pp. 636, with 520 illustrations; 639-1303, with 532 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2: 2083 Guy St., Montreal, 1951.

This edition of this two-volume work in what is commonly considered to be orthopedic surgery presents an extensive review of the subject. The editors did not intend to confine the material to a specialty field but intended rather to present, broadly, manifestations of disease, deformity, and disorders of the musculoskeletal system. To this end they have incorporated a recognition that certain fundamental principles govern all surgery and belong in every textbook of surgery. Thus, an up-to-date chapter on physiology of bone repair has been added. On the other hand, the chapter on military surgery has been deleted, which may be over-optimistic on the part of the authors. There is an excellent discussion of shock, beginning on page 711, but, as may happen with multiple contributors, discrepancies occur in this section. On page 714 one is advised to protect against chilling of the patient in shock, and on page 535 the active use of heat is advocated; these are not the same methods of treatment.

The volumes are divided into general sections. The first volume deals with soft tissue disease and deformities. The second volume covers mainly the effects of trauma on the motor-skeletal system. The subject matter is presented authoritatively and in sufficient detail to serve as reference and guide material. The appended bibliographies show a tendency toward aging and should be brought up-to-date. A large number of excellent illustrations is included. The book is of importance to orthopedic and general surgeons, and to the general practitioner who will find in it much valuable information on which he can rely.

**Les bruits du cœur et des vaisseaux.** Par A. Calo. Paper. 2600 francs. Pp. 555, with 229 illustrations. Masson & Cie, 120 Blvd. Saint-Germain, Paris, 6e, 1950.

This reference volume and text is obviously a labor of love. The heart sounds are discussed in detail from the point of view of their discovery and appreciation as well as from the physiological and clinical aspects. Methods of auscultation and phonocardiography are adequately described. The physics of sound is reviewed, and the special conditions obtaining in the chest are discussed. The normal sounds of the heart cycle are discussed in some detail, and various procedures for eliciting heart sounds, covering all surfaces of the body, with exploration of the esophagus and of the heart, are described. Notes on the interpretation of the objective findings of phonocardiography are included. The normal heart sounds are treated as a group, with special chapters devoted to each of the three physiological sounds and attention given to the doubling of these sounds. A fifth sound is also discussed.

A number of diseases, such as pericarditis, the arrhythmias, and block of the bundle branch system, are discussed in relation to the sounds produced. There is an extensive analysis of valvular disease, and endocavitary tumors are not overlooked. Congenital lesions of the heart warrant but a few pages of reference. Special sections are devoted to the fetal heart sounds, to the arteries, to the veins, and to arteriovenous anastomoses. The book is readable and numerous illustrations of persons important in the development of cardiology and of equipment enliven the manuscript. The volume is replete with photographs illustrating each subject discussed in the text. Dr. Calo, who has an unusual sense of bibliography and medical history, documents his book with 1,257 references. This tome is heartily recommended for students and practitioners of cardiology; in fact, it should be translated into English.

**A Translation of Galen's Hygiene (*De sanitate tuenda*).** By Robert Montraville Green, M.D. With introduction by Henry E. Sigerist, M.D. Cloth. $5.75. Pp. 277. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, 1951.

Six books are included in this first translation into a modern language of "De Sanitate Tuenda" considered one of the outstanding contributions of a master who dominated medicine in a large part of the old world, not only during his life but also for centuries afterward. As one reads his comments and recommendations, it is easy to see why he exerted such a profound influence; he writes with an assurance that early physicians must have found extremely comforting, beset as they were with doubts and uncertainties about virtually everything related to medical diagnosis and treatment. Although it is possible, in the light of present day science, to find much that is outdated, Galen, nevertheless, had a basic understanding that spans the centuries and can be applied to modern medicine. This is well demonstrated in a section dealing with gerontology, in which shrewd thinking and thorough observation and analysis resulted in many conclusions that can be utilized today.

As the introduction states, Galen tended to be somewhat verbose, but he has brought together a complete review and analysis of the attitudes toward hygiene that existed in the second century A. D. It is interesting to read and compare these ideas with our concepts and to recognize that not as many advances have been made as we would like to think. The individual books deal with the art of preserving health, exercise and massage, apotherapy (a special form of massage), bathing and fatigue, forms and treatments of fatigue, diagnosis, treatment and prevention of various diseases, and prophylaxis of pathological conditions. There is a good description of Galen, his background and activities, translated from a French work written in 1723, at the start of the text. This helps orient the reader to the text. Most of the chapters are short; this suits the average physician's need for "traffic light" starts and stops.

**Outline of Fundamental Pharmacology: The Mechanics of the Interaction of Chemicals and Living Things.** By David Fielding Marsh, Professor and Head of Department of Pharmacology, West Virginia University School of Medicine, Morgantown. Cloth. $6. Pp. 219. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Ryerson Press, 299 Queen St., W., Toronto, 2B, 1951.

This is an interesting and useful supplementary reference book for research students in pharmacology; however, it is inadequate as a text for medical or pharmacology students, because it gives superficial coverage of many important drugs and completely omits mention of some standard therapeutic agents. The author has attempted to discuss pharmacology, toxicology, and several specialized portions of each of these fields without giving adequate consideration to numerous advances made during recent years This fault is particularly apparent in the sections dealing with toxicology, which are deficient in both scope and accuracy. The book contains a good discussion of the relationship between chemical structure and biological activity.

**A Textbook of Clinical Neurology.** By J. M. Nielsen, B.S., M.D., F.A.C.P., Clinical Professor of Neurology and Psychiatry, University of Southern California, Los Angeles. Third edition. Cloth. $10. Pp. 709, with 212 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33d St., New York 16, 1951.

This book has become a standard textbook in clinical neurology since the publication of the first edition 10 years ago. The third edition has some important additions, particularly on the subjects of polyneuritis, cerebral thrombosis and embolism, angiography, epilepsy, poliomyelitis, and encephalography. The chapter on syphilis of the nervous system has been rewritten; the subject of electromyography has been added; and new charts of the dermatomes, which are more accurate than the old ones, have been provided. The book, therefore, attempts to keep up-to-date, but the task is beyond the scope of any individual neurologist. This is reflected in certain sections of this valuable text. In one chapter, for instance, the bibliography of 34 references contains only 2 that are pertinent to the literature after 1941. In a field so rapidly advancing as clinical neurology, many changes have taken place in the 10 year period. Certain references refer to papers already outdated. It is hoped that in future editions these can be eliminated and supplanted by more timely contributions, provided noteworthy advances to our knowledge of the subject under consideration have been made. To decide on the division between historical papers and those indicating newer research is not a simple task, but, in a textbook presumably written for medical students and physicians, the author has a responsibility to keep it as closely in touch with advancing science as possible. Those sections in which new material has been added indicate that the author is fully qualified to carry out such a course.

The book is too bulky, the type larger than needed, and considerable space is wasted in margins and at chapter endings. References in the text are not always found in the bibliographies. Instructions for treatment are seldom definitive; both the metric and the apothecaries' weights and measures are used indiscriminately. In spite of these adverse criticisms, the book is a valuable text, useful for both students and physicians.

**Lehrbuch der speziellen pathologischen Physiologie für Studierende und Ärzte.** Herausgegeben von Helmuth Bohnenkamp et al. Eighth edition. Cloth. 24 marks. Pp. 606, with 108 illustrations. Gustav Fischer, Villengang 2, Jena 15, 1951.

This textbook of pathological physiology deals with basic phenomena of abnormal physiology to a greater degree than comparative American texts do; however, in contrast to the American texts, clinical applications find less consideration. For instance, cardiac, respiratory, or hepatic function tests are discussed briefly. This principle of emphasizing physiology, which is often given in considerable and exact detail, rather than pathology or clinical medicine is reflected in the chapter divisions, which are concerned with blood, respiration, circulation, renal secretion, digestion and resorption, vitamins and deficiency diseases, metabolism, and the vegetative nervous system and internal secretion. Each chapter is written by a German authority, but the quality of the chapters varies markedly. The best chapters are those on blood and on the vegetative nervous system by Heilmeyer and Hoff, respectively, but the chapter on internal secretion, by the same author, is disappointingly short. References, including Anglo-American names, are found at the end of each chapter; nevertheless, in many chapters, most of the modern American work gets relatively little consideration. The paper and binding of the book are poor in contrast to other German medical books. Some of the schematic drawings and tables are excellent and constitute the main reason for the American physician to study the book.

***Transactions of the International and Fourth American Congress on Obstetrics and Gynecology.*** Edited by George W. Kosmak, M.D., Sponsored by American Committee on Maternal Welfare, Inc., held in New York City, New York, May 15-19, 1950. Published as supplementary volume to American Journal of Obstetrics and Gynecology, Volume 61A, June, 1951. Cloth. $13.50. Pp. 823, with illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1951.

This volume contains approximately 100 papers presented at the International Congress on Obstetrics and Gynecology. The program of this congress was designed to disseminate information relative to the health and welfare of mothers and infants. It covered five general topics: normal physiology of reproduction, neoplastic disease, the social and economic aspects of obstetrics, therapeutic and technical procedures, and abnormal physiology of reproduction. The participants in the program were various American and foreign authorities in the fields of obstetrics and gynecology. This volume should be of interest not only to specialists in these fields but also to nurses, public health and hospital personnel, and research workers.

# QUERIES AND MINOR NOTES

### SEROUS DISCHARGE FROM THE NIPPLES

To the Editor:—*A woman, aged 34, has had at intervals a serous discharge from both nipples for nearly a year. This discharge becomes worse during the night and is so profuse that it is extremely annoying to the patient. For several weeks there has been no discharge from the left nipple, and the left breast has become noticeably larger than the right. The nipples and areolas are normal in appearance and there are no palpable masses. What are the diagnosis and treatment for this condition?* *M.D., Idaho.*

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—From the description given, this does not appear to represent a galactorrhea. The description suggests the possibility of some intraductal lesion such as a papilloma. The enlargement of the left breast would seem to be in accord with such a consideration, and, therefore, it is suggested that surgical consultation be secured.

Answer.—A serous discharge from the nipples is most commonly associated with chronic cystic mastitis or with an intraductal papilloma. Since the left breast has become noticeably larger, there must be some grossly palpable pathological process taking place in that breast. An area of diffuse chronic cystic mastitis will be evident upon careful examination. Since it is accompanied by definite enlargement and serous drainage, this area, if found, should be excised. The right breast should be repeatedly examined by palpation in a clock-wise manner to determine the exact area responsible for the discharge. If necessary, the patient can be taught to examine her own breast repeatedly, to determine at what point the application of pressure produces the serous fluid. This area should then be suspected of having active chronic cystic mastitis or an intraductal papilloma, and it should be surgically investigated. Some authorities consider a serous discharge to be not particularly significant and advise waiting, but, because of the fear of cancer, many patients are loath to accept procrastination and wish to have prompt treatment.

### INDUSTRIAL EXPOSURE TO RADIUM BROMIDE

To the Editor:—*In an industrial plant, workmen are required to handle tubes that are similar to radio tubes, but which contain radium bromide; there is danger of breakage during handling. Is there any danger of toxic effects occurring from contact with or inhalation of this agent?*
*M.D., North Carolina.*

Answer.—Small quantities of radium bromide, with barium salt as a diluent, are used in various electronic tubes, such as ionization gauges; usually, the quantity is so minute that it is negligible. However, the quantity varies, and the trend is upward. As a rule, no more care need be exercised than in working with a luminous dial watch. Such a dial actively registers on a Geiger counter, but there is no known risk for the wearer. In the present instance, the manufacturers of various types of tubes should be called on to furnish data as to the quantity of the radium bromide used. In this way, the extent of potential harm, if any, may be calculated in the event of breakage. If the operations involved lead to numerous breakages, a monitoring survey with Geiger counters should be conducted. If exposure above the precise tolerable limit is established, a monitoring program should be created under the tutelage of the tube producer. No radioactive substance, even of low potency, should be discarded with ordinary waste; after careful collection and sealing, it should be shipped to the producer for disposal.

### WET SOLES IN AN INFANT

To the Editor:—*A 7-month-old girl is healthy in all respects; however, the soles of her feet are always wet. Her stockings are always moist, and when she kicks her bare feet against the floor or a table, she leaves the wet imprint of her foot on the surface. Can you suggest the possible cause and proper treatment of this phenomenon?* *M.D., Pennsylvania.*

Answer.—The cause of the localized sweating of the feet in this infant is probably due to local vasomotor action. Sharply differentiated hyperhidrosis usually occurs in the parts of the body in which the sweat glands are most highly developed, such as the scalp, face, axillas, palms, soles, and the genitocrural region. In older children, passive congestion of the hands and feet is often associated with sweating of these parts. Pressure on the plantar nerve, due to flat feet is often a cause of excessive sweating of the feet in older persons; this would hardly apply to an infant. Localized sweating in an infant with rickets is usually confined to the forehead; however, this infant is presumably healthy in all respects. Unless a definite cause for this condition can be determined, a rational treatment cannot be recommended.

### IMMUNIZATION

To the Editor:—*1. Does prenatal immunization of a pregnant woman with combined diphtheria, tetanus and typhoid antigens affect the success, as measured by antibody titers, of the present day early (two to three months of age) immunization of infants? 2. If a previously nonimmunized person is given tetanus antitoxin at the time of injury, would it be wise to start active tetanus immunization by giving him either alum precipitated or aluminum-hydroxide-adsorbed toxoid on the same visit?* *Shigeru Richard Horio, M.D., San Francisco.*

Answer.—1. Infants who in the early months of life are immune to diphtheria as a result of the persistence of maternal antibodies do not respond as well to the initial injections of diphtheria toxoid, and this probably applies also to pertussis and tetanus. The early injections in such infants do act as "priming" doses, however, and a fourth or stimulating dose given several months after the third dose will insure good antibody levels, even though the child may have had maternal antibodies in early infancy. It is now considered good practice to start immunization of all infants with triple antigen at two to three months of age and to give four instead of three doses of antigen before considering basic immunization to have been completed. There is some question as to the advisability of immunizing expectant mothers during pregnancy for a number of reasons, one of which is the severity of the reactions seen in many adults from injections of diphtheria toxoid or pertussis vaccine.

2. In the case of a previously nonimmunized person who is given tetanus antitoxin at the time of an injury, it is recommended that injection of the first dose of tetanus toxoid be deferred for two to four weeks.

### IODOALPHIONIC ACID AND KIDNEY FUNCTION TESTS

To the Editor:—*Since iodoalphionic acid (priodax®) causes a transient albuminuria, would it have any effect on tests for nonprotein nitrogen, and uric acid? Some doctors do not perform kidney tests on the same day that gallbladder examinations are made.* *R. Nelson Long, M.D., Selma, Ala.*

Answer.—Iodoalphionic acid, a radio-opaque water soluble organic iodine compound, is usually administered the day before the cholecystogram is made. If the renal function tests are made on the day of examination, the dye has no effect on them. Although iodoalphionic acid may cause a transient albuminuria in some cases, it does not do so usually. Occasionally, a faint tint caused by the dye is observed in the urine. In clinics where hundreds of patients are given iodoalphionic acid, any interference with possible renal function tests is disregarded.

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

## ELBOW PAIN IN INDUSTRIAL WORKERS

To the Editor:—*We have seen industrial workers who complain of severe pain over the lateral epicondyle of the humerus. Physical examination shows it to be normal, with the exception that full extension is sometimes limited. X-ray examinations are negative for bone abnormality. The usual treatment of rest, immobilization, external heat, and short wave diathermy affords no relief to these patients. Usually, no history of any accident is given, but these patients do repeated operations using the muscles of the hand and forearm, such as lifting small blocks about 6 in. in diameter. Are there any suggestions as to treatment?*

*M.D., Massachusetts.*

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—The condition described has been diagnosed as epicondylitis of the humerus, bursitis of the radiohumeral bursa, or arthritis of the radiohumeral joint. In most of these patients all three conditions will be found combined. Many of these patients have suffered an injury in which the strong fibrocartilaginous ligament that maintains the position of the radial head has been partially torn.

At operation, a tear in the coronal ligament, which should fit snugly about the moving articular portion of the head of the radius, a thickened radial bursa containing more than the usual amount of fluid, and new periosteal bone formation along the epicondyle may be found in a single case. When severe pain over the lateral epicondyle of the humerus fails to respond to immobilization, external heat, infrared ray, or diathermy and when it is also unresponsive to several injections of procaine (novocaine®) hydrochloride into the tenderest areas, an operation is definitely indicated. Surgery on these elbows has produced a much more prompt end result than has been obtained by any conservative method, when the patient has suffered from the disability for more than two or three weeks prior to beginning a good orthopedic management. At the time of operation the bursa, if it can be located, should be excised. The portion of the capsule that includes the tear in the thickened ligamentous support about the radial head should also be excised. The tissues attached to the epicondyle are then stripped free with a periosteal elevator. The wound is closed without any attempt to suture the capsule. A posterior molded splint is applied and worn for 10 days. Physiotherapy and very carefully graduated use of the arm are then recommended. Freedom from pain and a full functional recovery should be obtained within a period of five to six weeks from the time of the operation.

Answer.—The cases described would seem to fall into those generally designated as "tennis elbow." Pain usually occurs just above or below the lateral epicondyle of the humerus. It is seen in those individuals whose occupation requires repeated pronation and supination of the forearm combined with extension at the wrist. The underlying cause is thought to be a partial rupture of the fibers of the tendon of the extensor muscles of the hand, with a traumatic reaction in the periosteum covering the lateral epicondyle of the humerus.

The only conservative treatment of any value is the employment of a splint to hold the hand in extension in order to relieve the tension on the tendon. Surgical division of the tendon or dissection of the origin of the tendon from the epicondyle is the procedure of choice. This temporarily puts the tendon at rest, and, in its subsequent repair, some lengthening occurs, usually relieving the situation permanently.

## SURGICAL TREATMENT OF REGIONAL ILEITIS

To the Editor:—*What are the present day concepts of surgical treatment for a patient with regional ileitis with obstruction?*

*F. C. Harmon Jr., M.D., Paducah, Texas.*

Answer.—Some years ago, surgery was the treatment of choice for regional ileitis, with or without complications. With the accumulation of knowledge about this intractable disease and the increasingly frequent recurrences of the disease after resection, the limitations of surgery became apparent. Complications, such as obstruction, perforation, and massive hemorrhage are generally considered as surgical indications by all who have had experience in treating regional ileitis.

## PROLAPSE OF THE GASTRIC MUCOSA

To the Editor:—*A middle-aged woman who had abdominal pain was given a roentgenographic examination of the entire gastrointestinal region. A prolapse of the gastric mucosa through the pylorus and into the duodenal cap was seen. This condition caused no delay in emptying and no obstruction to the passage of barium from the stomach. What is the latest information regarding proper management and prognosis of this condition.*

*Richard J. Kraemer, M.D., Providence, R. I.*

Answer.—There is a wide variation of opinion concerning the etiology, significance, and treatment of prolapse of the gastric mucosa. Etiological factors cited include peptic ulcer, hypertrophy of the gastric rugae with protrusion into the duodenum, gastritis, narrowing of the pyloric ring, and hypermotility of prepyloric mucosa. There is no general agreement as to whether or not symptoms occur with prolapse of the gastric mucosa. Hemorrhage and carcinomatous transformation have been reported to occur. Certain authors claim that a considerable number of symptoms can result from mucosal extrusion. Subtotal gastric resection and surgical extirpation of the involved mucosa have been reported to relieve pain and discomfort after medical therapy proved to be ineffective. Symptoms of intermittent obstruction are said to sometimes occur. The frequent concomitant occurrence of gastritis has suggested to some that the symptoms are generally due to this rather than to the mucosal prolapse itself. When symptoms are present in the upper gastrointestinal region, the same type of treatment as that used for hypertrophic gastritis and peptic ulcer will often result in improvement. In certain rare instances, symptoms in this region may persist in the presence of mucosal prolapse in spite of intensive therapy. In such cases surgical intervention may be considered. Such complications as ulceration, hemorrhage, and obstruction will, of course, influence decisions regarding medical and surgical therapy. Medical management of prolapse of the gastric mucosa should include the type of diet prescribed for ulcers, frequent milk feedings, and antacids and antispasmodics in effective doses. In certain instances, high doses of B complex vitamins may be worthy of trial.

## ENLARGED TONGUE IN INFANT

To the Editor:—*A newborn child, who had a full term and spontaneous delivery, has a symmetrically enlarged tongue, most of which protrudes from the mouth. Motility is normal, and little interference with feeding is noted. Competent pediatricians find no other physical abnormality. What are the diagnostic possibilities, prognosis, and treatment?*

*M.D., Illinois.*

Answer.—Enlarged tongue, or macroglossia, is a noninflammatory enlargement. In most instances, this abnormality represents simple enlargement; certain severe cases are caused by an anomaly of the lymphatics comparable to lymphangioma. The tongue may reach enormous size, interfering with nursing, deglutition, and even with respiration. A certain amount of improvement may take place spontaneously, but in severe cases operation is required. Such cases are to be distinguished from those of enlargement of the tongue seen in cretinism. In this disease the tongue is considerably enlarged and may protrude slightly from the mouth, but it is rarely, if ever, large enough to cause other symptoms. The diagnosis of cretinism may be substantiated by determination of blood cholesterol, which is increased in this condition, and by roentgenologic assessment of skeletal development. Retarded bone age is characteristic of cretinism. The absence of the inferior epiphysis of the femur occurs in the newborn cretin, in contrast to the normal newborn, in whom the inferior epiphysis is present. This may be evidence of retarded osseous development occurring in utero in congenital cretinism.

Thyroid may be administered orally or parenterally to cause shrinkage of the tongue when the diagnosis of cretinism has been established. Macroglossia also occurs congenitally in idiocy and mongolism in the form of an increase in the interstitial tissue. In these diseases, the tongue, while showing no evidence of tumor formation, is too large for the mouth, protrudes beyond the lips, and is likely to be somewhat flabby,

## HYPERTENSION IN A YOUNG GIRL

To the Editor:—*A 9-year-old girl had an operation for acute appendicitis. No previous blood pressure readings were taken, but, after operation, while the patient was still under ether-ethyl chloride anesthesia, her blood pressure was elevated, and, it remained elevated for eight days, going as high as 220/170. Pressure in the leg vessels was also elevated. There were no symptoms. During the operation her respiratory tract was wet most of the time. Chest roentgenogram, intravenous urogram, eye grounds, urinalysis, and blood chemistry were all normal. Pressure, since discharge from the hospital, ranges from 95 to 110 systolic. The patient is moderately overweight but has always been in good health. We have been unable to explain the high blood pressure.*

*Everett S. McDaniel Jr., M.D., Jenkintown, Pa.*

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—It is most unusual for very marked elevation to occur in the blood pressure of patients under the influence of anesthesia, particularly if the patients are children (Leigh and Belton: Pediatric Anesthesia, New York, the Macmillan Company, 1948, pp. 23-25). However, temporary marked elevation of blood pressure is not unusual among patients who cannot ventilate well and, therefore, cannot dispose of their carbon dioxide. It would seem quite possible, in the present instance, in which ether and ethyl chloride were used and in which the patient's respiratory tract was wet most of the time, that the increase in blood pressure obviously meant poor respiratory exchange. The anoxemia associated with this condition would also tend to raise the blood pressure markedly, and, if the period of operation was fairly long, it is possible that some slight damage to her kidneys might have occurred. If so, the renal involvement might explain the eight days of elevated blood pressure. It may be that the blood pressure gradually decreased over the eight days, although all the necessary information on that point is not stated. It is possible, moreover, that this patient has a pheochromocytoma, which must be considered in any assessment of the uncommon complication reported. Therefore, it might be wise to conduct a cold pressor (Hines and Brown) test and a histamine test on the child. If results of these tests are negative, then the probability is that the reaction is bizarre and not easily explained. A few persons are hypersensitive to hypodermic injections of morphine, an idiosyncrasy more prevalent in women than in men. The child's reaction to the anesthetic agent and the operation is probably not serious.

Answer.—With the available data, it is impossible to be sure of the cause of the hypertension. If the urinalysis were not normal, pyelonephritis could be suspected. Pheochromocytoma should be searched for, in spite of the lack of convincing symptoms and signs. Vasospastic disease is another possibility, but knowledge of this condition is scarce. The vascular tree of the patient should be carefully studied and the studies periodically repeated in anticipation of another "attack."

## BLOOD DONORS AND MALARIA

To the Editor:—*For purposes of screening prospective blood donors, is Korea to be considered an area in which malaria is endemic?*

*M.D., California.*

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Korea is considered to be an area where malaria is endemic. The type of malaria that occurs in Korea is caused by Plasmodium vivax, which tends to cause relapses after the initial infection and cannot be controlled after suppressive therapy has been abandoned. Therefore, the presence of malaria parasites in the blood of potential donors should be detected before blood is taken from them, and any history of malaria should be carefully noted.

Answer.—Korea is definitely an area in which malaria is endemic. No blood should be taken from a donor coming from that area until he has been in this country for two years and only if no parasites are found in blood stains, in addition to absence of symptoms.

## HEMORRHAGE FROM THE PALPEBRAL CONJUNCTIVA

To the Editor:—*A 37-year-old woman had a spontaneous hemorrhage from one of the vessels of the left upper eye lid (bulbar surface). She had no history or evidence of trauma. A similar attack had occurred about one month earlier, near the anniversary of menses. The patient is hypertensive, and at the time of the hemorrhage her blood pressure was 180/120 mm. Hg. Could this condition have been vicarious menstruation, or could it be attributed to hypertension? The hemorrhage responded promptly to treatment with a few drops of a weak solution of epinephrine.*

*H. W. Williams, M.D., Corpus Christi, Texas.*

Answer.—Bleeding from the palpebral conjunctiva is an uncommon condition and usually occurs only in a few rare diseases. Duke-Elder (Text-Book of Ophthalmology, vol. 2, St. Louis, C. V. Mosby Company, 1938, p. 1056) mentions its occurrence in hemophilia, vicarious menstruation, and hysteria. Other cases have been reported in association with conjunctivitis, jaundice, vascular tumor of the conjunctiva, and disorders of the autonomic nervous system. Some cases occur without apparent cause. Hypertension has not been reported as an etiological factor, although it cannot be excluded from consideration in this case. Vicarious menstruation is characterized by periodicity and occurrence at the anticipated menstrual period; it may be associated with amenorrhea or decreased uterine flow. Further observation of the regularity of the bleeding and its source are required before the cause of the hemorrhage in this case can be determined.

## EFFECT OF CERTAIN DRUGS ON PROTHROMBIN TIME

To the Editor:—*When heparin sodium or bishydroxycoumarin (dicumarol®) is used to prolong the prothrombin time, can the concurrent administration of other drugs shorten or lengthen the prothrombin time?*

*Lawrence Parsons, M.D., Reno, Nev.*

Answer.—Some investigators have reported that certain drugs, such as the salicylates, quinine, penicillin, and even excess vitamin A, increase the prothrombin time, whereas digitalis and the methyl xanthenes decrease it. Other investigators (Quick, A. J.: *Ann. Rev. Physiol.* 12:237-264, 1950) have failed to confirm these findings. It is probable that, clinically, none of these drugs, with the possible exception of the salicylates, markedly influence the hypoprothrombinemia of bishydroxycoumarin. Occasionally, salicylates and paraaminosalicylic acid will cause a significant hypoprothrombinemia and, therefore, indirectly intensify the action of bishydroxycoumarin. Heparin sodium has little influence on the prothrombin time, and whatever increase occurs is not due to a true decrease of prothrombin but to an antiprothrombic and antithrombic action. Perhaps the most important drugs that influence the hypoprothrombinemia of bishydroxycoumarin are the antibiotics and sulfonamides, which sterilize the intestinal tract. The suppression of the bacterial flora reduces the synthesis of vitamin K, and this may bring about, in certain patients who are already low in vitamin K, a mild vitamin K deficiency. Since bishydroxycoumarin acts as an antivitamin to vitamin K, its action becomes more pronounced when the body's store of vitamin K is depleted.

## TREATMENT OF CHRONIC PELVIC INFECTIONS

To the Editor:—*Can you tell me the value of benzyl cinnamic ester (Jacobson's solution) in the treatment of chronic pelvic infection?*

*Stuart B. Blakely, M.D., Binghamton, N. Y.*

Answer.—The use of benzyl cinnamic ester in the treatment of chronic inflammatory lesions was introduced by Jacobson (*Bull. et mém. Soc. méd. d. hôp. de Paris* 53:477 [April] 1929). Lévy-Solal, Jacobson, Dalsace, and Pariente (*Paris méd.* 2:369 [Oct. 25] 1930) reported the results that they obtained in the treatment of salpingitis with this drug. They concluded that the pain associated with salpingitis disappears after four to six injections. Jacobson recently reported (*Am. Pract.* 2:699 [Aug.] 1951) his ideas concerning the action of benzyl cinnamic ester on chronic inflammatory lesions of the pelvis. He suggests that this preparation is able to inhibit the development of certain microbic agents, to neutralize the toxins in vitro, to produce leukocytosis, and to provoke general vasodilatation. This drug causes definite changes in the vascularization at the site of the lesion, such as the dilatation of the vessels, the opening of blocked vessels, and the appearance of new vessels; this is a probable explanation of the drug's action. Markowitz and Vick (*Am. Pract.* **1**:516 [May] 1950) used Jacobson's solution in treating 55 patients with chronic pelvic inflammatory disease. Subjective improvement graded as good occurred in 66% of the patients, as fair in 21%, and as little or no improvement in 15%. Eisenstein and Bendo (*Am. J. Surg.* **74**:200 [Aug.] 1947) used benzyl cinnamic ester in treating 30 patients; they believe that because of the results obtained, a further study of this safe, painless method of therapy that does not require hospitalization or interruption of daily duties is indicated.

## FAMILIAL NYCTALOPIA

TO THE EDITOR:—*Four brothers and a mother have a seemingly dominant characteristic, a progressive blindness, beginning with nyctalopia. One of the sons, 20 years old, is already suffering from night blindness and is in a state of constant anxiety, because he pictures himself getting in a condition similar to that of his brother and mother, who are almost completely blind. The physical and neurological examinations are almost entirely normal otherwise; from a psychiatric standpoint, there is a deep underlying hostility to his parents. He is highly intelligent, obsessive, compulsive, and understandably phobic. What are the factors that can be determined that lead to nyctalopia, and how can a case of vitamin A deficiency, supposedly the cause of nyctalopia, be studied?*

*Leon Freedom, M.D., Baltimore, Md.*

ANSWER.—Most textbooks on metabolism, medicine, biochemistry, and physiology devote considerable space to discussion of vitamin A and the causes and signs of deficiency. Avitaminosis A may arise from inadequate intake of the vitamin, from impaired absorption, as occurs in jaundice and sprue, and from severe liver disease, in which the carotene conversion process is impaired. Classical signs of deficiency include hyperkeratosis, xerophthalmia, cornification of epithelial surfaces, and night blindness. Determination of the vitamin A level of the plasma is probably the most reliable method of determining deficiency. The family background and the absence of physical signs of disease in this youth strongly suggest a primary chorioretinal aberration with night blindness as a cause of the visual defect. The various forms of this disorder are discussed in a symposium that appeared in Transactions of the American Academy of Ophthalmology and Otolaryngology (**54**:607, 1950). Congenital night blindness without ophthalmoscopic abnormality may be differentiated from vitamin A deficiency by the family history, dark adaptation tests, and the response to therapy with the vitamin. Retinitis pigmentosa sine pigment is characterized by an annular scotoma and is demonstrated by peripheral visual field studies.

## CYSTIC FIBROSIS OF THE PANCREAS

TO THE EDITOR:—*In 1950, a healthy infant was born to parents who have no family history of cystic fibrosis of the pancreas. Fifteen months later, a second child was born. Because of intestinal obstruction, his abdomen was explored a few days after birth, and meconium ileus was found. The child died subsequently, and, at autopsy, a diagnosis of cystic fibrosis of the pancreas was made. I would appreciate information that will assist me in advising this couple regarding the wisdom of having more children.*

*M.D., Georgia.*

ANSWER.—Cystic fibrosis of the pancreas has a strong ten- [illegible] occur in more than one sibling in a family; in spite [illegible] of the siblings may be entirely normal. For this [illegible] to advise the parents against having more [illegible] cannot state, percentagewise, what the [illegible] be.

## FIRST MARRIAGE AT 49

TO THE EDITOR:—*A healthy woman, 49, menstruated every month until one year ago, when she missed two periods. Her last period occurred in February, 1951. She feels at times as though a period were about to start, and has been having flushes during the past two months. She has never had sexual intercourse. Recently she became engaged, but will not marry if she is unable to become pregnant. I have to render an opinion and give advice. Is there any normal treatment that will help this person become pregnant?* *M.D., New York.*

ANSWER.—The chances for a pregnancy in this patient are extremely slim. It is almost certain that she has permanently ceased to menstruate. Hormones would be practically useless for the purpose of producing ovulation and pregnancy in this patient. Perhaps it might be wise to tell her that it is not impossible for her to become pregnant, although it is not likely. She must remember that many young women who are healthy and who menstruate every month do not become pregnant. Hormones can be tried even though the possibility of a pregnanc is remote. The physician must try to decide, however, whethe even the small amount of encouragement which he will giv her, and which has very little basis, will be harmful to th patient if she marries and does *not* become pregnant. Possibl a psychiatrist should be consulted before this matter is discusse with the patient again.

## MICA DUST AND BRONCHITIS

TO THE EDITOR:—*A patient has developed chronic bronchiti He is exposed to mica dust. Is there any occupational hazar*

*W. J. Klinck, M.D., Lennoxville, Quebec.*

ANSWER.—Mica is a loose term applied to a variety of sil cates of the magnesium-aluminum-potassium type. Chemicall some micas bear resemblance to talc and asbestos. As quarrie and sometimes as processed, some micas are associated wi silica bearing rock. "Clean mica" is rated as an inert dust as result of animal experimentation involving intraperitoneal intr duction, that is, no proliferation is induced. In theory, any du in high concentration may serve as a mechanical irritant to t respiratory tract. Practically, any chemically inert dust that m be inhaled is of such low particulate size that any mass actic is unlikely. Notwithstanding all improbabilities, chest lesio occur in mica workers. Apart from frank silicosis from c existing siliceous rock, some pneumoconiosis (possibly benig resembling silicosis appears among "clean mica" workers. T incidence of tuberculosis in these workers is higher than f the community as a whole. Bronchitis has been found, but t connection is not well supported. Further details may be fou in Dreessen's Public Health Bulletin No. 250, 1940, and Vesta "Pneumoconiosis Among Mica and Pegmatite Workers" (*I diana Med. and Surg.*, **12**:11 [Jan.] 1943). Both contain bib ographies.

## TREATMENT OF ARGYRIA

TO THE EDITOR:—*What can be done to remove a blue-gr discoloration of the skin from the nasal half of the low eyelid? This condition developed three years ago, after t patient used argyrol® (mild silver protein) eye drops, after attempt to probe her tear duct. Marked ecchymosis ensu following this probing. Because of this, there is the pos bility of the tear sac having been ruptured during the probin*

*Roscoe L. Fisher, M.D., York, Pa.*

ANSWER.—Stillians (*Arch. Dermat. & Syphilol.* **35**:67 [Ja 1937), recommends treatment of argyria by intradermal inje tions of a freshly prepared photographic reducing solution co taining 1% potassium ferrocyanide and 6% sodium thiosulfa It is tedious treatment requiring many injections, and, on t lower eyelid, the results from treatment are not as satisfacto as in areas where the skin is thicker. The most practical tre ment would be to cover the patch with a cosmetic preparatio such as "covermark."

Louis H Bauer

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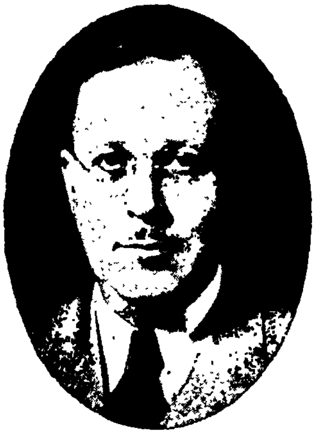

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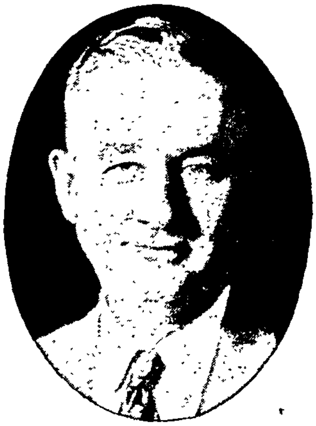

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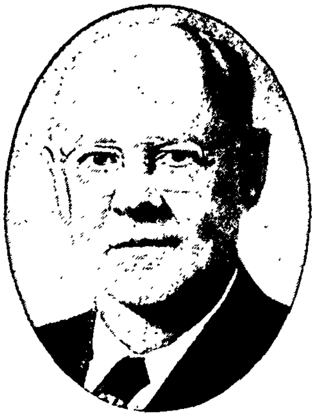

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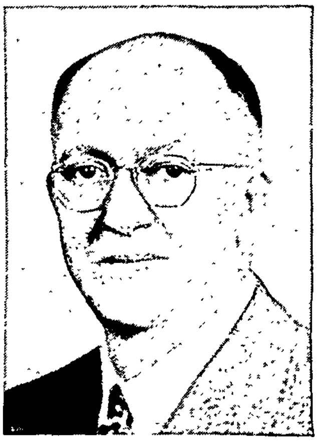

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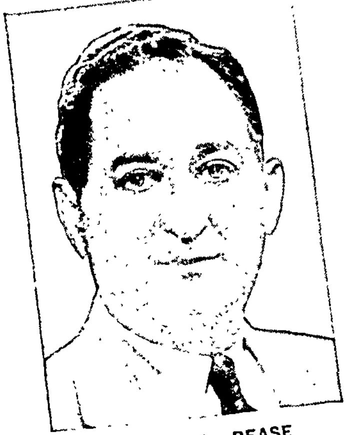

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# PSYCHOSOMATIC ASPECTS OF MENIERE'S DISEASE

*Edmund P. Fowler Jr., M.D.*
*and*
*Adolf Zeckel, M.D., New York*

It is the purpose of this paper to suggest that a basic disorder of personality usually is present in patients suffering from Ménière's disease and that the first attack and many subsequent attacks are caused by vascular phenomena in the labyrinth, which were brought on by emotional stimuli, so that Ménière's disease is primarily a psychosomatic disorder. The upsets in autonomic control are apparently directly related to unusually violent stimulation to the psyche in a specific type of personality, which has been undergoing stress over a period of time. Occasionally, the stress involves physical fatigue, illness, and surgical or dental operations, but usually the stress is emotional in origin.

For the purpose of the study, 23 patients with clear-cut Ménière's disease, suffering from paroxysmal attacks of vertigo with nausea and vomiting, in addition to tinnitus and a hearing loss in at least one ear, were selected in rotation as they came for observation over a period of a little over one year. This was not the first visit of all of the patients; some happened to come for a follow-up examination during this period. A battery of personality studies was given to each. These were recorded by unbiased observers, who knew nothing of the results, that might be expected or the identity of the patients. Rorschach [1] and psychiatric examination, although less objective from the observer's standpoint, brought out almost the same personality patterns and reactions to stress as the personality profiles by the Jenkins,[2] Bernreuter,[3] and Rosenzweig [4] picture frustration and other psychological tests. The patients were 24 to 60 years of age, and 13 were males. The majority of these were of an aggressive appearance and temperament. Among the patients were butchers, a stevedore, and a physical director. Most were unusually rugged, regardless of their profession. The 10 women were less uniform in type but, like the men, tended to be extroverts. Almost all persons of both sexes had pleasant personalities, and even those who were belligerent were unusually likable most of the time.

Fear of the paroxysmal attacks of vertigo, nausea, and vomiting has often been observed in persons with Ménière's disease. Once nausea and vomiting has occurred in a sensitive person, it is often difficult to ascertain when such an attack is due to direct stimulation of the labyrinth or due to a conditioned psychic stimulus. Several years ago a girl, after being violently seasick while crossing the ocean in the S. S. Bremen, was again seasick during an exhibit of one of the Bremen's cabins inside the Munich Industrial Museum a few weeks later. Many young airmen during the last war became airsick in the aircraft before leaving the ground. Because of such incidents, it has been assumed that the anxiety of many patients with Ménière's disease is due to fear of an impending attack of vomiting and vertigo. An anxiety does indeed often exist and may contribute to some attacks, which can be likened to the episodes cited, but evidence indicates that the real psychic troubles in severe Ménière's disease are much more deep-seated and, as a rule, are due to other anxieties.

From the time of Ménière's original study,[5] vascular phenomena have been suspected as the cause of the attacks. Now that the pathology of the disease has been shown to be due to labyrinthine hydrops,[6] there is little

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The photographs were obtained under the Philip Hanson Hiss Memorial Fund and grant 1328 of the U. S. Public Health Service.

From the Department of Otolaryngology (Dr. Fowler) and the Department of Psychiatry (Dr. Zeckel), Columbia University College of Physicians and Surgeons.

Read before the Section on Laryngology, Otology & Rhinology at the One-Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

This work was supported by grants from the Central Bureau of Research of the American Otological Society and by private contributions to the Otological Research Fund of Columbia University.

[1] Rorschach, H.: Psychodiagnostik: Methodik und Ergebnisse eines wahrnehmungs-diagnostischen Experiments (Deutenlassen von Zufallsformen), Bern, E. Bircher, 1921.

[2] Jenkins, T. N.: Some Contributions in Support of a Neutral Theory of Personality, Tr. New York Acad. Sc. **13**: 9, 1950.

[3] Bernreuter, R. G.: Personal Inventory, Stanford University, Calif., Stanford University Press, 1931.

[4] Rosenzweig, S.: The Picture Association Method and Its Application in a Study of Reaction to Frustration, J. Person. **14**: 1, 1945.

[5] Ménière, P.: Mémoire sur des lésions de l'oreille interne donnant lieu à des symptômes de congestion cérébrale apoplectiforme, Gaz. méd. Paris **16**: 597, 1861.

[6] Hallpike, C. S., and Cairns, H.: Observations in the Pathology of Ménière's Syndrome, J. Laryng. & Otol. **53**: 625, 1938. Altmann, F., and Fowler, E. P., Jr.: Histological Findings in Ménière's Symptom Complex, Ann. Otol. Rhin. & Laryng. **52**: 52, 1943.

question that changes in the blood supply to the inner ear are responsible, but the precise type of vascular disturbance involved and the cause of it have not been clear.

In discussing the intermittent character of the violent attacks of vertigo in Ménière's disease, Dr. E. P. Fowler Sr. suggested that periodic plugging of the small blood vessels within the labyrinth by the sludge described by Knisely, Bloch, Eliot, and Warner,[7] might be the etiological agent for the symptoms as well as for the pathology of the disease. Accordingly, we studied the vascular flow of patients with Ménière's disease by observing their conjunctival vessels. We found that clumping of red blood cells and sluggish flow in small blood vessels was marked shortly before and after Ménière attacks. Occasionally, microscopic hemorrhages were seen (fig. 1, 2, and 3). In two patients observed during an attack, the movement was so slow and the lumping so marked that it could be made out in spite of the fact that the patients had nystagmus. Between attacks, lumping of blood and slowed circulation might be present only in certain areas or be totally absent. The lumping seemed much more marked between attacks than it was in controls, unless the attacks became very infrequent and the patient had been feeling well for an extended period.

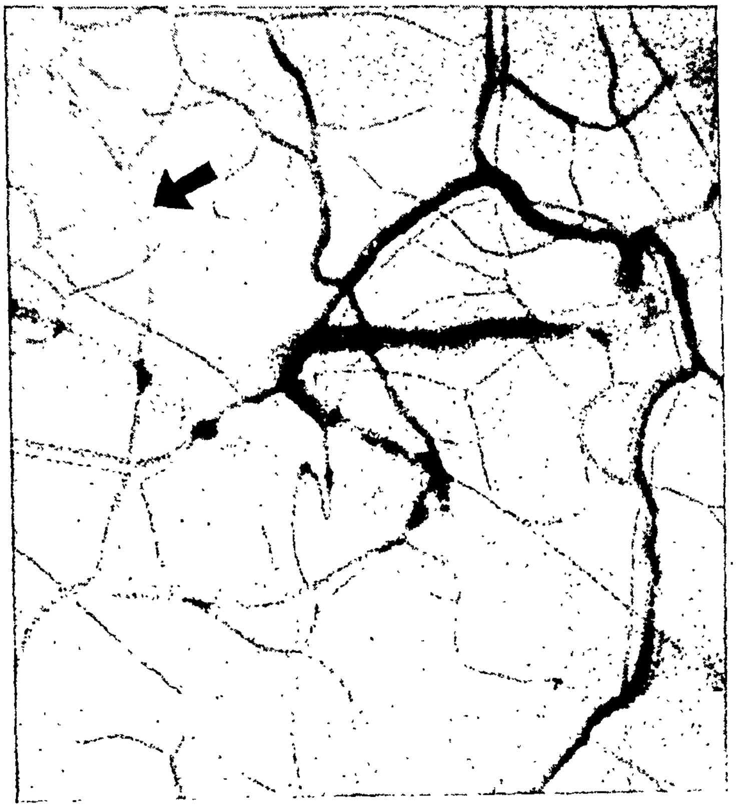

Fig. 1.—Conjunctival vessels of a young man four hours before an attack of vertigo. Note beginning of red blood cell clumping (arrow) and compare normal vessels to beaded appearance to be seen in fig. 2 and 3.

We have found a relationship between the appearance of the conjunctival circulation and changes within the otic mechanisms in Ménière's disease during the intravenous injection of procaine.[8] Procaine administered intravenously has been selected for therapeutic trial in Ménière's disease, because it breaks up lumping and increases the speed of the circulation of small blood vessels in cats suffering from experimentally produced sludge. Since intravenous administration of procaine, simultaneously with the disappearance of sludge, also altered or stopped the tinnitus in several cases of Ménière's disease, this is now presented as evidence for a vascular theory of the etiology of the disease.

To further substantiate our contention that sludging may cause Ménière's disease, we observed the conjunctival vessels before and after experimental psychic stimuli and have observed sludge easily induced in this way in patients with Ménière's disease. One patient wept so bitterly and the eyes became so suffused with tears that sludge was not apparent in the eyes after the experimental introduction of noxious thoughts, but this patient then had a moderately severe vertiginous attack and complained of increased tinnitus, further supporting our contention that psychic stimuli can cause such attacks.

Quite as dramatic as vertigo experimentally induce in this way is the history of the attacks given by patient with Ménière's disease themselves. One man had an at tack immediately after he had his two drunken, ob streperous sons and their mistresses thrown out of h house by the police. One woman had her first attack c leaving the courtroom, when her husband finished banl ruptcy proceedings. Another had attacks on reading son old letters that reminded her of some serious trouble th she had had with her family. A butcher had his attac shortly after his wife committed suicide. A refugee h attacks after he heard that all three of his brothers committed suicide at once to avoid Nazi persecution

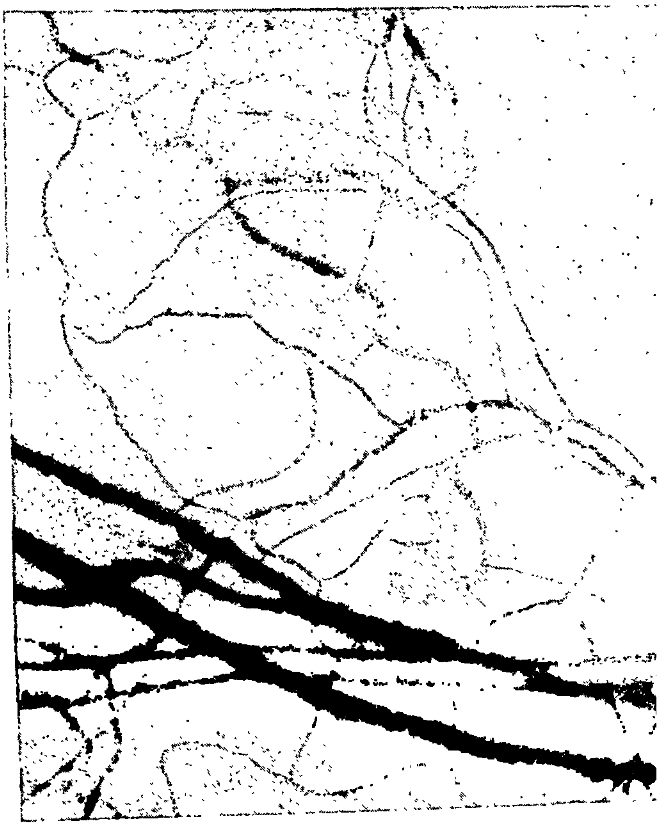

Fig. 2.—Narrowing of blood vessels and clumping of red blood ce the bulbar conjunctiva as seen in a patient with moderate Ménière' ease 12 hours after an attack. Most striking is the slowing of the lation. Often the red blood cells hardly move at all or vacillate and forth for several seconds in certain vessels.

On careful study it was found that all of the pat who broke down so dramatically with attacks of ve were fundamentally disturbed persons who had

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7. Knisely, M. H.; Eliot, T. S.; Bloch, E., and Warner, L.: Sludged Blood, Science **106**: 431, 1947.

8. Fowler, E. P., and Fowler, E. P., Jr.: An Explanation of Certain Types of Tinnitus and Deafness, Laryngoscope **60**: 919, 1950. Fowler, E. P.: Sudden Deafness, Ann. Otol. Rhin. & Laryng. **59**: 980, 1950. Hilger, J. A.: Vasomotor Labyrinthine Ischemia, ibid. **59**: 1102, 1950.

emotionally unstable for a long period of time. In many the beginning of the mental disorders could be traced to childhood (see table).

The universal finding of a single unspecific psychogenic symptom, like the damming up of tension, seems to be a very important factor in the histories of this disease. Also, the occurrence of first attacks with the attempted release of the tension seems important. On a certain psychological substratum, an unspecific psychological factor seems to cause a somatic disturbance. Based on the study of the 23 cases, we think that in Ménière's syndrome a certain predisposed personality can react to a certain emotional tension and develop vessel spasm with sludging and that this interferes with the circulation and normal function of the labyrinth to produce tinnitus and vertigo. The localization of the vascular plugging will determine how severe the attack is and whether long-lasting tinnitus or deafness will ensue. Sooner or later, there may be cessation of the vertigo even if vascular plugging occurs, but this is only when the labyrinth becomes hypofunctional and the eyes and vestibular spinal system have compensated for it.

*Chief Frustration Pattern and Somatic Manifestations in Twenty-Three Patients with Ménière's Disease* *

| Sex | Age, Yr. | Duration, Yr. | Cause of Attacks | Deafness | Tinnitus | Vertigo |
|---|---|---|---|---|---|---|
| | | | Antagonisms | | | |
| M | 36 | 2 | Tension and conflict at work | R ++; L ++ | +++ | ++ |
| M | 60 | 3 | Tension in his work | R ++++; L ++ | +++ | ++++ |
| M | 46 | 7 | Rage, marital problems, sex difficulties | R ++; L ++++ | ++ | ++ |
| M | 54 | 10 | Tension, anger | R ++; L – | +++ | +++ |
| | | | Sexual Abstinence | | | |
| M | 43 | 6 mo. | General tension | R +; L ++ | ++ | + |
| M | 29 | 1 | Sex frustration, other sexual problems | R +; L – | ++ | + |
| M | 49 | 2 | Grief over separation from children | R +++; L – | +++ | +++ |
| M | 47 | 27 | Stoppage of masturbation, work problems | R +++; L +++ | ++ | +++ |
| | | | Sexual Conflicts | | | |
| F | 36 | 4 | Severe father and mother conflict | R ++; L +++ | ++++ | ++++ |
| F | 34 | 5 | Sexual conflict, heart attack of father | R +; L ++ | ++ | +++ |
| F | 30 | 6 | Traumatic events related to mother, sexual problems | R –; L – | +++ | + |
| | | | Death | | | |
| F | 30 | 3 | Work tension, brother's death | R ++++; L +++ | ++ | ++ |
| M | 40 | 4 | Father's death | R –; L ++ | ++ | +++ |
| F | 60 | 5 | Favorite brother's death, flaring up of rage | R +++; L ++++ | +++ | +++ |
| M | 53 | 19 | Suicide of 3 brothers, work problems | R ++; L + | ++ | ++ |
| | | | Various Life Stresses | | | |
| F | 62 | 3 | Economic problems, worry about daughter | R ++; L +++ | +++ | +++ |
| F | 56 | 3 | General tension, domestic problems | R ++; L ++ | ++ | + |
| M | 31 | 3 | Dental operation, frustrated married life | R –; L + | + | + |
| M | 60 | 10 | General tension, personal antagonisms | R +; L + | + | +++ |
| F | 54 | 2 | Marital problems, financial problems, rage—daughter | R –; L +++ | ++ | ++ |
| M | 40 | 6 | General tension, wife's operation, robbery, fire | R –; L +++ | +++ | +++ |
| F | 49 | 15 | Bankruptcy, stress in work, marital—family | R +++; L +++ | +++ | ++++ |
| F | 38 | 22 | Dental operation, hysterectomy, tension—relative | R ++++; L +++ | ++++ | ++++ |

* Deafness is rated as + if 20-40 db., ++ if 40-60 db., +++ if 60-80 db., and ++++ if over 80 db. Tinnitus is rated according to the subjective report of the patient Vertigo is reported + if severe attacks occurred once a week, ++ if they occurred twice a week, +++ for three times a week, and ++++ *if more than three times a week. All estimates are for* the time that the greatest number of attacks were occurring.

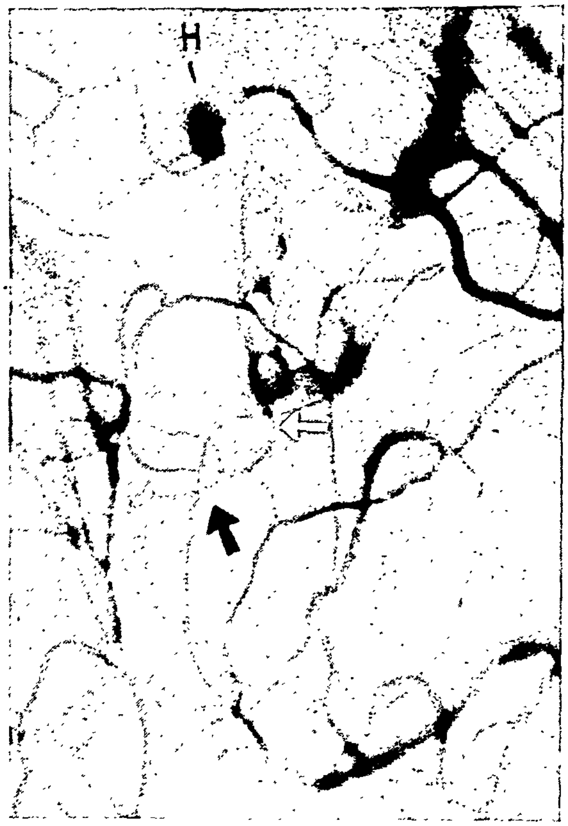

Fig. 3.—*Clumped red blood cells seen in slowed conjunctival circulation;* large clump is shown by black arrow, small clump by white arrow. The patient had had an attack of vertigo the night before this photograph was taken. Note *small hemorrhage (H).*

In attempting to ascertain the mechanisms that cause the vascular phenomena observed in Ménière's disease, we found that, in addition to the classical slowing of the circulation described by Elliott,[9] Cannon[10] and others, with cervical sympathetic stimulation and epinephrine, there is distinct clumping of the blood in the smaller vessels and that these clumps of blood tend to stop in certain areas where the vascular pattern consists of acute angles or where injury has taken place, as described by Knisely[11] and his co-workers, or where sensitization had occurred from denervation. In some cases there were distinct microscopic hemorrhages[12] (fig. 3). Cannon[10] and

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9. Elliott, T. R.: The Control of the Suprarenal Glands by the Splanchnic Nerves, J. Physiol. 44:374, 1912.

10. Cannon, W. B.: Bodily Changes in Pain, Fear, Hunger, and Rage: An Account of Recent Researches into the Function of Emotional Excitement, New York, Appleton-Century-Crofts Company, Inc., 1929.

11. Knisely, M. H.; Eliot, T. S., and Bloch, E. H.: Sludged Blood in Traumatic Shock: Microscopic Observations of Precipitation and Agglutination of Blood Flowing Through Vessels in Crushed Tissue, Arch. Surg. 51:220 (Nov.-Dec.) 1945.

12. Fowler, E. P., Jr.: A Theory for Allergy and Experimental Effects of Antihistamines on the Common ld, Ann. Allergy 9:299, 19

others have shown many of the small blood vessel changes that occur with anger and fear and attribute them to sympathin or epinephrine secretion. This is another reason why we examined patients with Ménière's disease both for changes in the capillary circulation and to see if they had traits in common that made them more susceptible to vasospastic or other changes in the peripheral circulation. The movement of red blood cells in the conjunctival vessels of these patients was identical to that observed in cats when epinephrine was injected.[13] This, we believe, is the first stage of blood sludging described by Knisely and his co-workers.[7]

Since there have been recent controversies concerning the nomenclature and significance of blood sludge, it would seem wise at this point to define our present concept of the sludging phenomena. We believe that lumping of blood occurs in human beings and cats with considerably more ease than in some other species. We have often seen lumping of blood in presumably normal persons, particularly if we searched several areas in the bulbar conjunctiva and particularly when the patients were apprehensive because of the examination or for some other reason. Since we have been able to produce what seemed to be the sludging phenomena in cats, with intravenously administered epinephrine, and in human beings, with locally applied epinephrine, with psychically induced anger, and even by placing the patient's hand in cold water, or in more stoic persons by placing a lump of ice on the back of the neck, we feel that the early stages of the sludging phenomenon, at least, are a definite entity, associated with sympathetic responses to epinephrine in the circulation. These early stages are not necessarily abnormal, however; on the contrary, they may represent normal tissue defense to trauma or other noxious stimuli. Further examination of the sludge phenomenon in cats makes us now feel that sludge is productive of pathological changes in a tissue only if it becomes dense and tough and remains stuck in a small blood vessel, or when changes in capillary walls occur with it, so that there is extravasation of blood. The sticking has been shown by Knisely and his co-workers to occur with tissue injury in cats and monkeys. We have confirmed their findings, but we also have been unable to produce it in all types of preparations; for example, we cannot find it in the cheek pouch of the hamster.[14] Nonetheless, since sludg- g is such a universal finding in human patients with anxiety, and as Knisely has said, the conjunctival vessels offer valid samples of its presence elsewhere in the body, we feel that the occurrence of a slow capillary circulation with concomitant sludge formation is worthy of note as a possible etiological factor for psychosomatic diseases in susceptible species. Theoretically a lump of sludged blood could produce the symptoms of Ménière's disease, and, if it stayed for any length of time, it could easily account for endolymphatic hydrops. It is probable that both the sludging and the slowing of circulation accompanying it are important in the production of symptoms. Their occurrence in the disease is due to epinephrine release, because the phenomenon can be produced with epinephrine and reversed with intravenous administration of procaine.

Therefore, it is our conclusion that to the increasing number of manifest psychosomatic disorders there should be added Ménière's disease. It is remarkable how often a simple discussion of their tensions and problems helps these patients; however, it would be impossible to provide them all with the help they need if each had to be treated individually. The similarity of many of their troubles makes it probable that they could be cared for by group therapy. We believe that all need psychic evaluation, and probably most, if they have severe manifestations of the triad, need psychotherapy or analysis. The final decision as to how they are treated will depend on the facilities available. It is hoped that in a few years medical or surgical destruction of the labyrinth can be abandoned, except for the most extreme cases in which the advanced symptoms of the disease cannot be prevented by the psychiatric approach.

## SUMMARY

1. Ménière's disease can be caused by psychogenic factors.

2. The effect of the psychogenic factors seems to involve slowing and arresting of the small blood vessel circulation within the labyrinth on an adrenergic pattern.

3. Excessive lumping of red blood cells and earl blood sludge in bulbar conjunctiva can be seen befor and after attacks.

4. It is suggested that these lumps of blood, whe caught in the smaller vessels of the labyrinth, are instrumental in the production of the labyrinthine hydrop which has been found to be the characteristic patholog of the disease.

5. Medical treatment and surgery will, for the tim being, have to be continued in the care of patients wit advanced Méinère's disease, but in a large percentage cases psychotherapy is necessary in addition to any these forms of help.

6. In early cases, psychotherapy may reverse th course of the disease, so that there are few if any residual

7. Since there is much similarity in the significa traits in all these patients, group psychotherapy trea ment should be considered, especially in clinics whe individual therapy is too time consuming and costly.

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13. Fowler, E. P., Jr.: Capillary Circulation with Changes in Symp thetic Activity: A Blood Sludge from Sympathetic Stimulation, Proc. So Exper. Biol. & Med. 72: 592, 1949.

14. Lutz, B. R.; Fulton, G. P., and Akers, R. P.: White Thromb embolism in the Hamster Cheek Pouch After Trauma, Infection a Neoplasia, Circulation 3: 339, 1951.

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**Fibromyomas of Uterus.**—I fully approve of . . . conservatis in treatment of fibromyomas of the uterus. Not more than o in three women with fibromyomas ever requires surgery. Follo up will show that over a period of years no harm is done permitting asymptomatic small and moderate-sized fibromyom to remain until the change of life. After this, nearly all tumo up to 10 cm. shrink. The risk of fatal malignancy in fibr myomas is almost negligible. Far too many fibromyomato uteri are removed when no symptoms are present. The chi reason for removing a uterus with fibromyomas should be e cessive bleeding, not the presence of myomas. When there no profuse bleeding and no pain on palpation of the uterus, an especially when growth of the neoplasm is not rapid, there no justification for surgery.—J. P. Greenhill, M.D., 1951 Yea Book of Obstetrics and Gynecology, Chicago, The Year Boo Publishers, Inc., p. 423.

# COMMON NEUROLOGICAL DISEASES SEEN IN GENERAL PRACTICE

*Karl O. Von Hagen, M.D., Los Angeles*

The commonest neurological condition seen by the clinician results from the various manifestations of cerebrovascular disease, which is due generally to some type of vascular anomaly, usually congenital, or to the complications of arteriosclerosis, with or without hypertension or heart disease, or to syphilis. Cerebral embolism is included in this group because the symptoms are due to some disturbance of cerebral circulation, because it has to be differentiated from other cerebral vascular lesions, and because the treatment is essentially the same as for cerebral thrombosis.

## CEREBROVASCULAR ACCIDENTS

*Intracranial but Extracerebral Hemorrhage.*—Hemorrhage occurring in the cranium but outside of the cerebrum is usually due to a congenital vascular anomaly but may be due to trauma or to rupture of a superficial sclerotic artery. The usual congenital anomaly is an aneurysm due to malformation in the arterial wall at the bifurcation of one of the vessels comprising the circle of Willis. The symptoms are usually manifest in young adults but may appear at any age. Before rupture, aneurysms give no localizing signs, unless they produce pressure on some structure, such as the olfactory nerve, to cause anosmia; or on the optic nerve or chiasm, to cause unilateral visual impairment; or on the third, fourth, or sixth cranial nerves, to produce some type of ophthalmoplegia. Consistent unilateral migraine-like headaches that appear without the visual symptoms of migraine may result from an aneurysm.

Rupture produces the characteristic symptoms of spontaneous subarachnoid hemorrhage. A sudden dizziness, with severe generalized headache, nausea, and vomiting, followed by some disturbance of consciousness that ranges from delirium to coma, usually the latter, develops. Examination shows signs of meningeal irritation, stiff neck to flexion (not on rotation), and positive Kernig and Brudzinski signs. The tendon reflexes are equal but may vary in activity. Plantar responses are variable. The presence of meningeal signs always necessitates spinal fluid examination, which shows bloody fluid under high pressure. Treatment initially is complete bed rest, with elevation of the head, and ice caps. Sedation and analgesics are given to insure quiet. Spinal puncture, with reduction of pressure by 50%, is indicated every two to five days for relief of headache and other pressure symptoms, such as vomiting or increasing lethargy. If there are signs indicating recurrent hemorrhage, cerebral angiography should be done immediately in order to localize and determine the nature of the lesion, so that surgical intervention may be attempted if possible. Otherwise, the patient should be treated symptomatically and kept at rest for one to three weeks before angiography is attempted. There is some danger in waiting longer, since in about half recurrence of bleeding will develop, and the incidence of these recurrences reaches [illegible]s peak in the third and fourth week. Once the lesion is [illegible] neurosurgical intervention is indicated in the cases, since this approach has a much lower mortality than conservative management alone.

*Intracerebral Hemorrhage.* — Intracerebral hemorrhage is caused by disease of the blood vessels or trauma. Arteriosclerosis is the commonest cause. Rupture of a vessel usually occurs during stress, such as heavy lifting, straining at stool, coitus, or even exciting dreams. The commonest site of intracerebral hemorrhage is the region of the basal ganglia due to rupture of the lenticulostriate or lenticulo-optic arteries.

Onset of symptoms is abrupt; the patient usually loses consciousness rapidly. The face is flushed, sometimes cyanotic, and respiration is stertorous. The pulse may be slow and bounding, but the blood pressure frequently falls, the pulse becomes rapid, and the patient may even be in shock. There is usually a hemiplegia, which is difficult to evaluate because all the tendon reflexes are absent, and there is flaccidity of the limbs. Babinski reflexes are often positive bilaterally because of the coma or generally increased intracranial pressure. If the tendon reflexes are active immediately, the chances are that the patient has not had an intracerebral hemorrhage. Spinal fluid examination is necessary for accurate diagnosis. Typically, there is some increase of pressure, red blood cells are usually present, and there may be xanthochromia. It should be emphasized that cerebral embolism, neoplasm, and subdural hematoma may produce the above spinal fluid findings, but the clinical history in the latter two diseases should permit a differential diagnosis. If cerebral embolism produces blood-tinged spinal fluid, the diagnosis cannot positively be made unless there is evidence of embolism elsewhere in the body.

Treatment at the onset is symptomatic, with elevation of the head, ice caps, and sedatives for restlessness. Fluids are given if requested. If parenteral administration is necessary, it is preferable to do it by clysis, and the amount should be limited to 3,000 cc. daily. If the patient does not improve as he should, especially when there is no evidence of rupture into the ventricular system, such as grossly bloody spinal fluid under increased pressure and coma, angiography should be considered, since in certain cases the blood becomes *encapsulated* and further hemorrhage produces gradually increasing intracranial pressure that results in progressive stupor. This type of lesion responds extremely well to neurosurgical intervention.

*Cerebral Thrombosis.*—The clinical manifestations of cerebral thrombosis are not solely the result of sudden occlusion of an artery but rather are due to a combination of vascular spasm and anoxia of the tissues involved, which may ultimately produce an area of softening without definite arterial occlusion. The patient is usually an elderly person with arteriosclerosis in whom there is some impairment of cardiac efficiency. Th [illegible] frequently develop in a patient with a [illegible]

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Read at the Fifth Clinical Session [illegible] ciation, Los Angeles, Dec. 6, 1951.

and occasionally will occur simultaneously with acute coronary thrombosis. The onset of symptoms is gradual, usually developing during rest. Confusion and stupor may occur, but marked disturbance of consciousness is unusual unless the lesion precipitates a convulsive seizure; then there is sudden coma without apparent cause.

Occasionally there may be a series of premonitory symptoms, such as numbness, weakness, or even language disturbance, which have exacerbations and remissions but eventually become permanent. Not infrequently a neoplasm will produce the same type of course and therefore in the elderly person is always to be differentiated from cerebral thrombosis. Spinal fluid examination is essential in diagnosis. Usually there is no increase in pressure, and the fluid is clear, with no change in cell count or total protein. Unanticipated elevation of pressure or total protein should always suggest the possibility of neoplasm. Even though spinal fluid findings are normal, progression of symptoms or continued disturbance of consciousness, especially in situations in which the degree of motor or sensory impairment is not great, should make one suspect neoplasm as a possibility.

*Cerebral Embolism.*—Cerebral embolism is characterized by sudden onset of symptoms indicating intracerebral involvement, usually with coma. The spinal fluid is clear and shows no increase in pressure, cell count, or total protein. The diagnosis can be made only when there is a cardiac or vascular lesion that can be a source for an embolus or when there are embolic phenomena elsewhere in the body.

The treatment of acute cerebral thrombosis and embolism is identical. After hemorrhage, neurosyphilis, and neoplasm have been ruled out clinically, the patient should immediately have a block of the stellate ganglion on the side of the lesion with 10 cc. of 2% procaine hydrochloride (novocaine®), which should produce Horner's syndrome. There should be immediate improvement. The block should be repeated in six hours if any relapse occurs and thereafter once or twice daily if the improvement is not sustained. If no improvement is noted after the first block, there is little justification for doing a second one. If a stellate block cannot be used, procaine (500 cc. of a 0.1 or 0.2% solution) may be of benefit and may be given once or twice daily.

General supportive measures should be instituted as indicated. Oxygen, being a vasodilator, should be used not only when there is evidence of respiratory embarrassment or cyanosis but also when there is severe cerebral involvement. Mucus should be aspirated, and the foot of the bed elevated. Adequate fluid intake (3,000 to 4,000 cc. daily) should be maintained, using the intravenous method if the patient is unable to take fluids orally. Niacin or roniacol® (beta-pyridyl-carbinol tartrate), 100 to 200 mg. three times daily, is given for its vasodilating effect. If the patient remains unconscious more than 48 hours, nutrition may be supplied by tube feeding. Sedatives should be used sparingly. Urinary incontinence or retention should be treated according to present-day urologic principles.

Anticoagulants may be used in conjunction with a stellate block or alone in certain instances in which there are recurrent minor attacks with remission. When there is progression of the symptoms in spite of a stellate block and supportive measures, especially if the lesion is on the major side and causing some language disturbance, use of anticoagulants is advisable.

*Prognosis in Cerebrovascular Accidents.*—The prognosis of spontaneous subarachnoid hemorrhage depends considerably on the type of treatment. With conservative management approximately 50% of the patients die in the first episode. Of the survivors 50% die in a subsequent attack. Surgical treatment offers a much better prognosis. Mount[1] reports a mortality rate of 48% for medically treated cases and 14% for the surgically treated cases. Falconer,[2] who feels that every case should be treated surgically, reports a series of 50 consecutive cases in which treatment was by carotid ligation and/or intracranial exposure and in which there were nine deaths, with three patients severely disabled and five moderately so.

The prognosis in intracerebral hemorrhage is usuall grave. This is particularly so because a severe intracerebral hemorrhage is usually complicated by secondar brain stem hemorrhage. Primary brain stem hemorrhage are invariably fatal. Almost as poor is the outlook fo the patient in whom there is intraventricular extension o the hemorrhage (indicated by grossly bloody fluid). Statistics generally show that 75 to 85% of the patients wit intracerebral hemorrhage die within three weeks. Th prognosis in cerebral thrombosis is much more favorabl but depends on the severity of the lesion, the age of th patient, and the history of previous attacks. Unless large vessel is thrombosed, death rarely follows the fir attack. This also applies to cerebral embolism.

## MULTIPLE SCLEROSIS

Multiple sclerosis is a common disease of the nervou system, the etiology of which is unknown. It is characte ized pathologically by foci, at first microscopic in siz and later becoming larger and sclerotic, scattered di fusely through the brain and spinal cord. The foci ten to involve the white matter predominantly and do n affect the cerebral or cerebellar cortex. The optic nerve are frequently affected. The condition may appear any age but usually appears between 12 and 50 year Neither sex nor occupation plays a role in the etiolog

*Symptoms.*—The onset of symptoms may be acute insidious. Depending on which part of the nervous sy tem is predominantly affected, cases may be classifie as cerebral, cerebellar, or spinal types. Typically, the are exacerbations with remissions that are not complet so that disability increases with each episode. The i terval between episodes varies considerably, from a fe months to many years. I have seen one case in which th interval between the first and second episode was 1 years. The symptoms may be precipitated by infectio emotional tension, or pronounced fatigue, and sometim by pregnancy.

The symptoms obviously depend on the location an extent of the lesions or plaques. Of the cranial nerves, th optic nerves are frequently affected. Retrobulbar ne ritis with central scotoma is evidence of multiple sclerosis in at least 75% of the cases. The appearance of optic atrophy, especially temporal hemiatrophy, is significant even if there is no history of visual impairment. Diplopia occurs at some time during the course of the illness in almost every case, generally owing to involvement of the third nerve or its central connections. Nystagmus is very common, since it may result from both cerebellar and brain stem lesions.

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[1] Mount, L. A.: Treatment of Spontaneous Subarachnoid Hemorrhage, J. A. M. A. 146: 693 (June 23) 1951.

[2] Falconer, M. A.: The Surgical Treatment of Bleeding Intracranial Aneurysms, J. Neurol., Neurosurg. & Psychiat. 14: 153 (Aug.) 1951.

Cerebellar symptoms due to lesions in the cerebellum or its central connections are common and include nystagmus, intention tremor, staggering gait or gross ataxia of the limbs, and scanning speech. Involvement of the spinal cord results in monoplegia, hemiplegia, or paraplegia with sphincter disturbance and minimal, if any, sensory disturbance. Sensory disturbance is generally described as paresthesias, which may be painful. The tendon reflexes are usually affected in some way. Because of the predominant involvement of the pyramidal tracts, they are usually increased; the abdominal reflexes are diminished or absent. Pathological toe signs are present in the majority of cases. The spinal fluid is altered in a high percentage of cases, varying naturally with the stage and activity of the disease. The total protein is increased in about 40% of the cases, the cell count in about 30%. Of most importance is the colloidal gold curve, which gives a first zone (paretic type) rise in 30 to 70% of the cases, depending on the sensitivity of the test used.

*Diagnosis and Prognosis.*—The diagnosis depends on a history of repeated episodes with remissions, evidence of more than one lesion in the nervous system, and preferably some sign known to be characteristic of multiple sclerosis, such as retrobulbar neuritis, temporal hemiatrophy, ataxia, and abnormal spinal fluid findings. Syphilis is ruled out by serologic tests. Spinal cord neoplasm should always be thought of in cases with spastic paraplegia. A cervical cord tumor may even produce nystagmus; therefore, one must always do a Queckenstedt test. If any doubt exists concerning the diagnosis, especially if there is a sensory level, an ethyl iodophenylundecylate (pantopaque®) study is indicated. The prognosis is not always poor. The duration of life from the time of diagnosis ranges from a few months to 30 years. The average duration is probably 15 to 20 years.

*Treatment.*—There is no specific treatment for this disease. Patients should be advised to avoid excessive physical or emotional stress and may benefit by supportive psychotherapy. Pregnancy is contraindicated. Bed rest is desirable during any type of infection. If there are frequent relapses, a change to a mild climate may be beneficial. Drug therapy is unsatisfactory. Some authorities recommend the administration of vitamin B complex and niacin in moderate amounts. Physiotherapy should be used where it gives symptomatic relief. The patient should probably not be given the diagnosis unless it is absolutely necessary. If the diagnosis is certain, some responsible member of the family should be informed.

### PROGRESSIVE SPINAL MUSCULAR ATROPHY

Of the degenerative diseases, progressive spinal muscular atrophy is the commonest. The cause of the degenerative process is not known. Generally it is considered to be due to some selective constitutional deficiency, as a result of which a certain part of the nervous system degenerates prematurely. In some cases this is familial, which would suggest that the defect is gene-transmitted. In progressive spinal muscular atrophy there is degeneration of the motor cells, either in the brain stem or spinal cord (lower motor neuron), or in the motor cortex (upper motor neuron), or both. The clinical classifications depend on the location of the predominant pathological changes and are as follows: (1) progressive ophthalmoplegia, in which the third, fourth, and sixth cranial nerve nuclei are predominantly affected; (2) true bulbar palsy, characterized by greatest involvement of the 10th and 12th cranial nerve nuclei; (3) the spinal type of atrophy, both adult (Aran-Duchenne) and infantile (Werdnig-Hoffman) forms, in which the anterior horn cells throughout the entire spinal cord and brain stem suffer; (4) the Charcot-Marie-Tooth type, in which the cells of the lumbar enlargement suffer most; (5) primary lateral sclerosis, in which there is major involvement of the motor cells in the cortex, producing thereby an upper motor neuron lesion; and (6) amyotrophic lateral sclerosis, in which the anterior horn cells of the cervical enlargement and the motor cells in the cerebral cortex are predominantly affected, this being therefore a combination of the spinal type of atrophy with primary lateral sclerosis.

The classical findings in all types characterized by predominant anterior horn cell or bulbar nuclear disease are progressive muscle weakness and atrophy associated with fascicular twitching. There is reduction of tendon reflexes in the affected limbs. Since the disease usually affects the cortical motor cells to some degree in all cases, there may be pathological toe signs. The classical findings in the types characterized by predominant cortical motor cell involvement are those of upper motor neuron disease, namely, spastic paralysis, increased tendon reflexes, and pathological toe signs. Progressive ophthalmoplegia is rare. The third and fourth cranial nerve nuclei are first affected, and this results in insidious development of diplopia, ptosis, or strabismus. Muscle fasciculation cannot, of course, be seen, and diagnosis is only determined after prolonged observation, during which myasthenia gravis, syphilis, and neoplasm are ruled out.

True bulbar palsy is the result of major involvement of the bulbar nuclei, develops insidiously, and is characterized by progressive disturbance of speech, mastication, and swallowing, until the patient is unable to speak, chew, or swallow. The muscles of the tongue are atrophic and fasciculate. There is also paralysis of the tongue, soft palate, muscles of the floor of the mouth, and the pterygoid and temporalis muscles. Death usually occurs in two to three years because of aspiration pneumonia and/or starvation. Again myasthenia gravis, syphilis, and neoplasm must be differentiated from this disease.

The adult spinal type of atrophy (Aran-Duchenne) is fairly common and is manifest by diffuse involvement of the anterior horn cells of the spinal cord. This may be more marked at one level, so that, for example, the patient may have marked weakness of the muscles of the neck with minimal weakness in the limbs, or there may be predominant weakness in one or both upper or lower extremities. There is loss of weight and strength, with muscular atrophy and fasciculation. The tendon reflexes are diminished. There may be pathological toe signs. The presence of sensory symptoms should make the diagnosis of progressive muscular atrophy questionable.

The Werdnig-Hoffman or infantile form of atrophy is rare and will not be discussed further in this paper. The Charcot-Marie-Tooth type is different from the rest of the group in that it is strikingly familial, often being transmitted to the male by an apparently unaffected female, and does not cause death or fatal disability. Characteristically, the condition manifests itself in childhood by the development of pes cavus and hammer toes. This leads to no complaint, and the patient has no trouble until about the fourth decade of life, when he finds that weakness of the legs with foot drop has gradually developed. Examination shows atrophy of the feet, legs, and lower third of the thighs. There may be some atrophy of the small muscles of the hands. The ankle jerks, and, later, the knee jerks disappear. Fasciculation may be seen early but is usually not evident. The reason for the relative absence of disability is that the atrophic muscles are replaced by an elastic and somewhat hard connective tissue that helps support the joints; this phenomenon does not occur in the other diseases in this group. The axial muscles and face are never involved.

Primary lateral sclerosis is rarely familial. Whether familial or not, it is uncommon. It manifests itself as a slowly ascending spastic paralysis with increasing tendon reflexes and pathological toe signs. Subacute combined sclerosis, multiple sclerosis, spinal cord tumor, and parasagittal meningioma are to be considered in the differential diagnosis. Amyotrophic lateral sclerosis is probably the commonest type seen and is due classically to a combination of anterior horn cell involvement, predominantly in the cervical enlargement, with primary lateral sclerosis. There is, as a result of the former, atrophy of the small muscles of the hands, the interossei, thenar, and hypothenar eminences wasting away, resulting in great disability and the appearance of the ape hand due to the fact that the thumb recedes dorsally to become aligned with the fingers. There is muscle fasciculation. Because the simultaneously developing lateral sclerosis, the ndon reflexes are active, out of proportion to the atrophy in the upper extremities. They are hyperactive in the lower extremities, which become spastic, and there are pathological toe signs. The condition usually causes death by bulbar paralysis within two to six years after the diagnosis has been made. Cervical cord tumors or intervertebral disk, syringomyelia, or vascular disease in the cervical region may simulate the condition but usually show sensory changes that should lead to the correct diagnosis.

*Diagnosis.*—The diagnosis in all types of progressive spinal muscular atrophy depends largely on the physical and neurological findings. Blood cell count, blood serology, and complete spinal fluid examination should always be done. Thyroid function should be checked, since hyperthyroidism may result in progressive muscular atrophy. An electromyogram often shows fasciculation not evident clinically and in my experience has been of great value in the diagnosis of questionable cases. Roentgenograms of the cervical spine in atypical cases of amyotrophic lateral sclerosis are indicated, and ethyl iodophenylundecylate studies will definitely rule out spinal cord compression in primary lateral sclerosis. Electroencephalographic and even pneumographic examination may be indicated in this condition to rule out parasagittal meningioma.

*Treatment.*—Treatment is unsatisfactory. The tocopherols in moderate doses (200 to 400 mg. daily) hav apparently been beneficial to a very small number of pa tients. Physiotherapy may be helpful in symptomatic re lief of spasticity, and occasionally orthopedic measure are necessary to stabilize the feet or correct the foot dro in the Charcot-Marie-Tooth type disease.

### POLYNEURITIS

Polyneuritis is a term applied to any condition i which there is symmetrical involvement of the peripher nerves, which is usually due to some nutritional, toxi or metabolic disturbance but may be inflammatory i nature. In all cases in which the etiological agent do not have some selective action, the longest neurons a affected first and the distal portion of the limb shows tl first symptoms. Recently, there has been considerab evidence to indicate that the manifestations of this co dition are due to disturbances in the enzyme system the peripheral nerves, which result in the demyelinizati that is common to polyneuritis, regardless of the caus In line with this concept, it has been shown that thiami is a member of the enzyme system, functioning as a c enzyme. Niacin and riboflavin function in the same wa It may be that there is in persons in whom polyneuri develops, regardless of the cause, a constitutional def in the enzyme system. The clinical picture of polyneuri is such that the diagnosis can be made without determi ing the etiology. It should be kept in mind that the sym toms are due to involvement of the sensory and mot fibers, in varying degree, usually in the lower extren ties, since the longest neurons are affected first and a manifest distally first and then extend proximally.

*Symptoms.*—The early sensory symptoms are num ness and tingling. These are followed by the developme of pain, which may be mild or severe. During the pain stage the limbs may be extremely hyperesthetic; la they may become anesthetic. The motor fibers may b come involved first, though the patient usually notic the paresthesias before the weakness. He first complai of weakness in the toes, then the feet, and finally in t entire limb. Since the paralysis begins distally, it is alm always most marked distally, so that the patient may ha complete foot drop with only mild weakness of the thig Associated with the weakness is moderate muscul atrophy.

The clinical signs are invariably bilaterally symmet cal. There is flaccid motor weakness, most marked d tally. The tendon reflexes are diminished or absent, t ankle jerks disappearing first. There is sensory impa ment, usually of all modalities, which is of varying deg and is most marked distally, and there is nerve trunk te derness. The history and physical examination should thorough and will help the clinician to determine t etiology in the majority of cases, especially in chro alcoholism, malnutrition, pernicious anemia, arseni intoxication, and postdiphtheritic cases. There are relatively large group of cases that are apparently due to some type of allergic response to an infectious process. The condition develops shortly after almost any type of infection and is classified as infectious neuronitis. It produces the clinical picture of polyneuritis. There may be some myelitis, which may result in patients' having positive Babinski signs, unless they have a foot drop. Not infrequently there is peripheral facial palsy. The diagnosis in this type of reaction depends on finding in the spinal fluid a high total protein level with normal cell count. When the syndrome is present with unilateral or bilateral facial palsy, it is designated as the Guillain-Barré syndrome.

*Treatment.*—Treatment is directed toward eliminating the causative agent, if this can be determined. Assuming that many cases are a result of a disturbance of the enzyme system, the administration of thiamine hydrochloride (100 mg. a day) should be beneficial. During World War II dimercaprol (2,3-dimercaptopropanol) was developed to neutralize the toxic effects of arsenic, which were apparently due to the fact that arsenic forms a union with the sulfhydryl radicals of enzymes essential to biologic oxidation and reduction. Dimercaprol displaces the arsenic, thereby stabilizing the enzyme system. Acting on the assumption that polyneuritis was due to a disturbance of the enzyme system, Furmanski[3] tried dimercaprol in a number of cases and obtained favorable responses, even in cases of neuronitis. Thus dimercaprol should be tried in any severe case of polyneuritis, regardless of the cause. The dose is 2 to 3 mg. per kilogram of body weight every six hours. If no favorable response is obtained in several days, use of the drug should be discontinued.

Vitamin B complex should be given routinely in moderate dosage. Sedatives and analgesics should be used as indicated, every effort being made to avoid addiction. When foot drop and wrist drop develop, splinting is necessary. Physiotherapy has an important place in the rehabilitation of the severely affected patient.

727 W. Seventh St.

[3] Furmanski, A. R.: BAL Therapy of Severe Peripheral Neuropathies, Arch. Neurol. & Psychiat. 60: 270 (Sept.) 1948.

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# MEDICAL EDUCATION AND THE MEDICAL PROFESSION

*John W. Cline, M.D., San Francisco*

The American Medical Association and the Federation of State Licensing Boards have had a long and fruitful partnership in the efforts to raise medical standards throughout the United States. The Association values highly and is appreciative of the support that the state boards have given to its recommendations. If it had not been for this continuing support, much of the improvement in the quality of medical education, and thus in the quality of medical practice, that we have witnessed in the last 50 years would have been impossible. The state boards, as official governmental bodies, have final decision with respect to the standards physicians must meet to be eligible for licensure. It is also the state boards that have final discretion as to who shall and shall not receive a license. We look forward to continued cooperation in the public interest in the years to come.

Last October, I was privileged to speak in Tennessee on the occasion of the 100th anniversary of medical education in that state. In preparation for this talk, I reviewed the history of medical education in this country. It is truly an inspiring story of foresight, a sound sense of values, and persistent courage. It is one from which we can draw valuable lessons.

You all are familiar with the subject, and I shall not dwell upon detail, but I wish you would consider for a few minutes the problems that were faced by the physicians of 100 years ago. They had just recently organized a national association—the American Medical Association—for the primary purpose of raising the standards of medical education. The situation confronting them was chaotic. Many of the schools then in existence had been established and were operated primarily for the profit of the promoters and faculty. Some were little more than diploma mills. Most had no entrance requirements. There was no uniformity in curricula, and the entire course in many schools lasted only four to six months. The new American Medical Association set to work. When it wrote to the schools, however, the letters were seldom even acknowledged. The A. M. A. passed resolutions that were likewise ignored. So many schools had been established that competition for students was keen; the faculties, therefore, were reluctant either to lengthen courses or to establish entrance requirements—both of which the A. M. A. recommended—for fear of losing pupils and thus losing the money derived from tuition fees.

The problem of the irresponsible schools was not the only one facing the physicians of 100 years ago. Even the better schools had difficulty in finding qualified students, because primary and secondary education was poor. In 1870 (just 82 years ago) President Eliot of Harvard asked the medical faculty to adopt written examinations for the medical degree instead of the customary five minute oral examination by each of the professors. The dean answered, "Written examinations are impossible in the Medical School. The majority of the students cannot write well enough."

In the face of these almost insurmountable obstacles our profession did not give up, nor did it turn to the federal government for aid. Through its national organization, the A. M. A., it kept working on the problems, although without much success until the turn of the century.

You all know of the events of the next 20 years. The system of rating medical schools was established, and the

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President, American Medical Association.

Read before the Forty-Eighth Annual Congress on Medical Education and Licensure, Chicago, Feb. 11, 1952.

results were published regularly. The A. M. A. and the Association of American Medical Colleges then began inspections of the schools. The Carnegie Foundation was asked by the A. M. A. to make a study of medical education that resulted in the famous Flexner report. The state licensing boards began paying more and more attention to the recommendations of the A. M. A. and the Association of the American Medical Colleges. All these groups, by working together, were successful in revolutionizing medical education. There is no doubt that the system of education that grew out of that revolution and that has been improved steadily ever since is the basic factor in the magnificent medical progress of recent years. It has developed physicians with inquiring, scientifically trained minds who have blazed trails of discovery as they have gone into research, into teaching, and into practice.

Progress has been quantitative as well as qualitative. Approved schools have been able to increase their enrollments to a significant degree without sacrificing quality, until today we are graduating more medical students than we did in the diploma-mill days at the turn of the century. It is confidently predicted that 30% more physicians will be graduated annually by 1960 than was the case in 1950. This rate of increase is unmatched by any other professional group! The remarkable improvement in both the quality and the quantity of medical education in this country has been accomplished by voluntary and local effort despite formidable obstacles. Such success should encourage us to tackle our present financial problems with equal determination and to do so standing squarely on our own feet. Freedom has been a priceless ingredient in medicine's progress, and I firmly believe that our medical schools will be in real danger of losing their freedom if they become perpetually dependent on Washington "handouts."

As you know, there are several bills for federal aid to medical schools now before the Congress. The most prominent of these is S. 337. The A. M. A. has vigorously opposed this bill because it provides funds for the basic operating expenses of medical schools—thus putting the government in a position to influence basic policies. The Association has recognized, however, that many medical schools have serious financial problems and that opposition to the bill is not enough. We must have a constructive program for raising money for medical education. The A. M. A., therefore, is supporting a two-part plan to achieve this purpose. First, the Association has agreed to support single federal grants to medical schools for the construction and renovation of physical plants. This is a method of aid similar to that employed in the Hill-Burton Hospital Construction Act, which the Association has long supported. The A. M. A. believes it to be reasonably free from the hazard of federal control and that such legislation would solve one of the important financial difficulties of many medical schools.

The other important problem is the need for unrestricted operating funds. The Association is attempting to meet this need in part through the American Medical Education Foundation. The Association itself has given a million dollars to the Foundation since it was established a little over a year ago. Other segments of organized medicine have contributed also. The California Medical Association gave $100,000 last year. The Pennsylvania State Society recently pledged itself to raise $250,000 from its members this year. Interest in the Foundation is growing rapidly, and this gives us confidence that we will raise considerably more money in 1952 than we did last year.

The Association also has worked closely and actively with the National Fund for Medical Education, which is raising money for medical education from business and industry. All funds collected by both of these agencies are distributed to the schools to use in any way they see fit. This policy of unrestricted contributions is important. The profession believes in the freedom of the medical schools and believes that the individual school knows its own problems best. It would be unthinkable for the profession to use the Foundation in any way to exercise control over the policies of the medical schools.

The American Medical Association is currently investigating still a third source of funds. Over the years, the A. M. A. has been requested on occasion to accept patents for medical discoveries made by member physicians. The Association has refused these requests, believing that, as an association, its operating funds should come from publications and dues. The Board of Trustees, however, recently has approved, in principle, the setting up of a private holding corporation to receive such patents. The royalties from these would be turned over to the American Medical Education Foundation for distribution to the medical schools. It has appointed a committee to study the technicalities involved. Provided no legal barrier is encountered, such a holding corporation shortly will become a reality. The income from such a source would, of course, depend on the number and character of the patents assigned to it, but, judging from past offers, this is a possible source of large sums of money for medical education and one that should increase with the years.

Organized medicine is making a sincere effort to help the medical schools overcome their financial difficulties. I might add that it is about time! Organized medicine as a whole has been somewhat negligent in its support and encouragement of the medical schools, and it has been slow to consider and understand many of the problems faced by the deans. On the other hand, I think that some of the deans and faculty members have become out of touch with organized medicine and its goals and objectives. It is easy for those who are wholly engaged in teaching to become more or less completely absorbed in the academic and research aspects of medicine, just as it is easy for those in practice to become completely absorbed in the care of their patients. I believe that in this area, as in others, many of the disagreements that have arisen within the ranks of medicine have stemmed from a lack of mutual understanding.

It is time for us all to recall that we are members of the same profession, that we cherish the same goals of advancing medicine and improving the health of our fellow men, and that we can best accomplish these goals by working together. Organized medicine is offering its assistance to the medical schools because it has a sincere interest in high standards of medical education and in high standards of medical care for the American public. For your part, I urge you to play an active role in your local, state, and national medical associations. They provide the common meeting ground for all segments of the profession, and it is on this ground that differences of opinion should be thrashed out. The profession then can work as a whole to solve the problems existing in medical care and to preserve the freedom that is essential to maintenance and further improvement of the high standards already achieved.

490 Post St.

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# NARCOTIC CONTROL BY PHYSICIANS

*H. J. Anslinger, Washington, D. C.*

The Bureau of Narcotics, established in the Treasury Department in 1930, is the federal agency charged with the duty of regulating, supervising, and controlling the trade in narcotic drugs under the applicable federal laws. It serves as the special administration that the United States was obligated to create for this purpose under the Narcotics Limitation Convention of 1931. The United States has obligations, under this and other conventions and protocols, to restrict the availability of narcotic drugs to medical and scientific needs.

The two principal federal narcotic laws are the Narcotic Drugs Import and Export Act and the so-called Harrison Narcotic Law, as amended. The first of these laws authorizes the importation of only such quantities of opium and coca leaves as the commissioner of narcotics finds necessary to provide for medical and scientific needs. Importation of any form of narcotic drug, except such limited quantities of crude opium and coca leaves, is prohibited. By an amendment in 1924, it was made unlawful to import any opium for the purpose of manufacturing diacetylmorphine (heroin), whereupon the manufacture of diacetylmorphine in the United States was discontinued, and there has been no lawful manufacture of it in this country since that time. Exportation of manufactured narcotic drugs and preparations is permitted under a rigid system of control, designed to insure their use for medical and scientific needs only, in the country to which they are sent. The second law, the Harrison Narcotic Law, as amended, is designed to control the domestic manufacture, sale, and distribution of narcotic drugs; it more directly affects the practicing physician and the drug trade.

If a physician in private practice intends to prescribe, administer, or dispense narcotics in the course of practice, the Harrison Law requires him to register in class 4 with the collector of internal revenue on or before July 1 of each fiscal year and to pay an occupational tax of $1.00. To qualify for such registration, he must be entitled, under the laws of the state in which he practices, to prescribe, administer, or dispense narcotics to patients in the course of his professional practice. This usually means that the practitioner must be qualified with the state medical board to practice medicine in the state.

If he is registered, the practitioner can make a narcotic drug available for the medical needs of a patient either by issuing a prescription written for the individual patient, which is filled at a registered drugstore, or by directly administering or dispensing the narcotic drug to the patient. A narcotic prescription must be written for the medical needs of an individual patient; it cannot serve as an order form to obtain a supply of narcotics from a pharmacist for the practitioner's general office use. To obtain a supply for direct administration or dispensing, the practitioner must use the official order form that is obtainable from the collector of internal revenue. Registered manufacturers or wholesale dealers are eligible to fill such order forms. One exception is made: a person qualified only as a retail dealer (druggist in class 3) can supply a registered practitioner, on an order form and in quantities not exceeding 1 oz. (30 cc.) at any one time, with aqueous or oleaginous solutions, in which the narcotic content does not exceed a greater proportion than 20% of the complete solution; this is to be used in legitimate office practice.

The provision of the Harrison law that is most important to the practitioner is the limitation that all prescribing, administering, and dispensing of narcotic drugs shall be "in the course of his professional practice only." When the law first became effective, in 1915, some physicians evidently thought that this limitation meant nothing more than restricting to practitioners the right to prescribe and dispense narcotics and that the individual practitioner could exercise this right at his personal discretion. There was evidence that some of these physicians were prescribing and dispensing quantities of morphine to "patients" who had no medical need for the drug, for the purpose of gratifying and perpetuating drug addiction. In 1919, a case involving the legality of this practice reached the United States Supreme Court (Webb and Goldbaum v. U. S., 249 U. S. 96); the question to be decided was as follows: "If a practicing and registered physician issues an order for morphine to an habitual user thereof, the order not being issued by him in the course of professional treatment in the attempted cure of the habit, but being issued for the purpose of providing the user with morphine sufficient to keep him comfortable by maintaining his customary use, is such order a physician's prescription under exception (b) of section 2 (of the Harrison Act)?"

To this question, the Supreme Court answered: "To call such an order for the use of morphine a physician's

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United States Commissioner of Narcotics and Representative of the United States on the Commission on Narcotic Drugs of the United Nations.

prescription would be so plain a perversion of meaning that no discussion of the subject is required. That question should be answered in the negative."

The Supreme Court emphasized this rule in a later case (Jin Fuey Moy v. U. S., 254 U. S. 189) involving the prescribing of narcotics by a practitioner for an addict, by holding in part as follows: "Manifestly the phrases 'to a patient' and 'in the course of his professional practice only' are intended to confine the immunity of a registered physician, in dispensing the narcotic drugs mentioned in the Act, strictly within the appropriate bounds of a physican's professional practice, and not to extend it to include a sale to a dealer or a distribution intended to cater to the appetite or satisfy the craving of one addicted to the use of the drug. A 'prescription' issued for either of the latter purposes protects neither the physician who issues it nor the dealer who knowingly accepts and fills it."

The authoritative interpretation that the term "professional practice" does not include prescribing or dispensing for the mere gratification of drug addiction was followed and continues to be followed by the great majority of medical practitioners who have traditionally upheld the ethics of their profession. In the intervening years, however, a number of physicians—fortunately comparatively few—have disregarded the court's ruling and the high standards of the profession by causing the sale of substantial quantities of morphine to addicts for the sake of financial gain. A few years ago, two physicians in Richmond, Va., two in Elizabeth City, N. C., and one in Lynchburg, Va., issued hundreds of so-called prescriptions to drug addicts; this represented a total annual sale of several pounds of morphine. One physician in Seattle purchased, during a period of a little less than four years, a total of 445,980 tablets of morphine, 0.5 grain (30 mg.) each; these he gave by hypodermic injections to drug addicts. During a period of one and one-half years, the offending physician obtained, for dispensing approximately four and one-half times the amount of morphine obtained and dispensed by all the 72 physicians and 23 hospitals in the city of Seattle.

These are examples of the flagrant type of cases in which there must be prosecution of the offenders. Somewhat more numerous are the cases in which the physician has not demonstrated outright venality but has been extremely careless in his treatment of a few cases that should have been at least questionable. These physicians either accepted the diagnosis of the patient without examination or allowed themselves to be imposed upon by a persuasive story told by the importuning addict.

Even in the case of a patient who is suffering from a malignant condition, it is necessary that the physician exercise care to see that narcotic dosage is not diverted. There is on record in the bureau an instance in which the physician was treating a cancer patient who lived in the country about 15 or 20 miles from the physician's office. It became a habit for the patient's adult niece to call at the physician's office once a week to receive a prescription for the patient's narcotic requirements. This continued for a period of months, the physician never taking the opportunity to see the patient. It was not until a narcotic officer called on the physician one day to inform him that the patient had died about a year previously that the physician realized he had been dispensing morphine for about a year to the patient's niece, an ordinary drug addict, who had been selling part of the supply so obtained to other addicts at exorbitant prices. Dr. Morris Fishbein, in writing an introduction to a series of articles on the indispensable uses of narcotics, published in The Journal in 1931, made a pertinent observation that I take the liberty of quoting:

"Physicians may, by the exercise of more thought in practicing, do much to avoid censure in relation to narcotic addiction. They may substitute, whenever possible, non-habit-forming drugs in the place of morphine or other opium alkaloids. When narcotics are indispensable, however, as shown in this series of articles, no more should be administered than is necessary to achieve the desired end. Patients requiring daily administration should be seen often by the doctor and the amount of drugs ordered or supplied should not exceed that required by the patient until seen again. Independence of administration on the part of nurses should be strictly limited to prescription and any change in treatment should be in writing."

The irregularity noted oftenest on the part of physicians is the practice of telephoning to the druggist an order for narcotic drugs for a patient and failing to furnish the required prescription. A narcotic regulation (Article 172 of Narcotic Regulations No. 5) provides that, in an emergency, a druggist may deliver narcotics through his employee or responsible agent pursuant to a telephone order from the physician, provided the employee or agent is supplied with a properly prepared prescription before delivery is made, which prescription shall be turned over to the druggist and filed by him as required by law. Both the Harrison law and the Uniform State Narcotic Law required that the sale by the druggist be made only pursuant to a written prescription, which must be kept in the druggist's file. When the physician fails to leave the written prescription with the patient, the druggist, who knows the requirement but does not wish to offend the physician, takes a chance and delivers the narcotic drug without the prescription. In making such sales, the druggist, of course, is violating the law, and the physician, too, it seems, under these circumstances, is violating the law, because he has aided and abetted the unlawful sale.

Drug addicts and peddlers are aware of this irregular practice, and there are instances in which they have taken advantage of it to secure a supply of narcotics. A typical case is that of the addict who impersonates the physician and telephones an order for a narcotic drug to the druggist. When the drug is delivered (to a relative of the patient standing on the street in front of the given address), the druggist's agent is paid and informed that the prescription will be furnished later. Practitioners should strictly comply with the regulation, and, when emergency demands a telephoned order, he should see to it that the written prescription is available to the druggist no later than the time of delivery of the drug.

The bureau is required by law to cooperate with the licensing boards of the several states, and it reports to the appropriate state licensing board the facts in each instance in which a licensee, such as a practitioner or druggist, has been convicted of a narcotic law violation or as to whom there is evidence of drug addiction. Action toward suspension or revocation of the licenses of such persons is the responsibility of the board under applicable state law. As to addicted practitioners, it has been the policy of the bureau, insofar as the federal law is concerned, to urge such persons to undergo institutional treatment with a view toward cure and rehabilitation. Unfortunately, there are relapses, and the bureau respectfully suggests that the state licensing boards take action, if they are not already doing so, toward long suspension or even revocation of the licenses of such persons, in order to avoid recidivism.

What has been said about the necessity of measures of control of the opium and coca leaf derivatives applies also to certain synthetic drugs discovered or developed during the past 10 or 12 years, which have been found to possess a pain relieving quality—and an addiction liability—comparable to that of morphine. Under administrative procedure provided by statute, any drug found to possess addiction liability comparable to that of morphine or cocaine can be subjected to control under the federal narcotic laws, on proclamation of the finding. Several such drugs are now covered under federal narcotic control, but some of them have not been introduced in drug trade channels because they were not deemed to have sufficient advantages over pain relieving drugs already in use to justify the promotional effort and expense. A few of the new drugs have been introduced for medical use and have been used to some extent by the medical profession as analgesic drugs. Some of the synthetic analgesic drugs now available are meperidine (demerol®) hydrochloride, methadone hydrochloride, and dromoran® hydrobromide (3-hydroxy-N-methylmorphinan hydrobromide).

It must be emphasized that these synthetic drugs are addicting as well as pain relieving, and, in prescribing or dispensing them, the physician should exercise the same care as in the prescribing or dispensing of morphine. Whatever advantage may have been achieved in the discovery, production, and distribution of the synthetic narcotics now available, science has not yet produced the ideal drug of this group, a synthetic pain relieving drug that will not have addiction liability.

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**Prostatic Cancer.**—The majority of prostatic cancers grow for a long time without causing any symptoms. When they do occur, the symptoms are those of slowly progressing obstruction of the bladder outlet which may be largely or entirely due to an associated hyperplasia of the gland. It may be noted at first that after urination the last few drops cannot be expressed and they seep on the underwear. Later, occasional nocturia occurs. Then it is discovered that when voiding for the first time in the morning, urination starts hesitantly. Before long, the stream becomes slower and it can be maintained only by a conscious effort. Frequently, dysuria, overflow incontinence or complete obstruction due to tumor growth are associated with hopeless stages of the disease, as are pains in the perineum, penis or sacral region. Unilateral sciatic pains in a man over sixty are suspicious, while bilateral sciatica in such a person is pathognomonic of a prostate cancer.—Archie L. Dean, M.D., Early Diagnosis of Tumors of the Genito-Urinary Organs, *The Connecticut State Medical Journal*, November, 1951.

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# COUNCIL ON PHARMACY AND CHEMISTRY

## NEW AND NONOFFICIAL REMEDIES

*The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.*

R. T. Stormont, M.D., *Secretary.*

**Acet-Dia-Mer-Sulfonamides** (See The Journal, Oct. 20, 1951, p. 759).

The Blue Line Chemical Company, St. Louis

*Suspension Incorposul:* 60 cc. and 473 cc. bottles. A suspension containing 44 mg. each of sulfacetamide, sulfadiazine, and sulfamerazine in each cubic centimeter. Preserved with 0.05% methylparaben and 0.01% propylparaben.

**Aminoacetic Acid and Calcium Carbonate** (See New and Nonofficial Remedies 1951, p. 310).

Schenley Laboratories, Inc., New York

*Liquid Titralac:* 236 cc. bottles. A suspension containing 60 mg. of aminoacetic acid and 0.14 gm. of calcium carbonate in each cubic centimeter. U. S. Patent 2,429,596.

**Bacitracin** (See New and Nonofficial Remedies 1951, p. 43).

The Upjohn Company, Kalamazoo, Mich.

*Bacitracin (Topical):* Vials. Powder containing the equivalent of 2,000, 10,000, or 50,000 units of bacitracin.

**Chlorprophenpyridamine Maleate** (See The Journal, Sept. 8, 1951, p. 128).

Schering Corporation, Bloomfield, N. J.

*Syrup Chlor-Trimeton Maleate:* 3.78 liter bottles. A flavored solution containing 0.5 mg. of chlorprophenpyridamine maleate in each cubic centimeter.

**Diphtheria and Tetanus Toxoids-U.S.P.** (See New and Nonofficial Remedies 1951, p. 384).

Parke, Davis & Company, Detroit

*Combined Diphtheria-Tetanus Toxoids:* 1.5 cc. vials (one immunization) and 7.5 cc. vials (5 immunizations). Preserved with thimerosal 1:10,000.

**Meth-Dia-Mer-Sulfonamides** (See New and Nonofficial Remedies 1951, p. 103).

Henry K. Wampole & Company, Inc., Philadelphia

*Granules Sulfatryl for Suspension with Sodium Citrate:* Flavored granules which when mixed with 60 cc. of water yield a suspension containing 33 mg. each of sulfadiazine, sulfamerazine, and sulfamethazine, and 0.1 gm. of sodium citrate in each cubic centimeter.

**Penicillin for Injection for Prolonged Action** (See New and Nonofficial Remedies 1951, p. 126).

Bio-Ramo Drug Company, Inc., Baltimore

*Aqueous Suspension Procaine Penicillin G:* 5 cc. and 10 cc. vials. A suspension containing 300,000 units of procaine penicillin G in each cubic centimeter. Preserved with 0.015% butyl *p*-hydroxybenzoate. Buffered with 14 mg. of sodium citrate.

**Penicillin for Oral or Sublingual Administration** (See New and Nonofficial Remedies 1951, p. 122).

Eli Lilly & Company, Indianapolis

*Tablets Potassium Penicillin G (Buffered):* 200,000 and 250,000 units. Buffered with calcium carbonate.

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## THE CHICAGO MEETING

The one hundred and first annual meeting of the American Medical Association will be held in Chicago, June 9-13. It is 105 years since the Association was organized. This long period of experience is reflected in all phases of A. M. A. programs and is readily apparent to those who regularly attend the meetings and follow the Association's other activities. Elsewhere in this issue of THE JOURNAL is information on the events for the Chicago session, and even a casual examination of the pages will reveal a tremendous source of medical information for those who wish to tap it.

In the scientific exhibit will be found special exhibits and question and answer conferences on such subjects as fractures, fresh pathological specimens, artificial respiration, overweight, cardiovascular diseases, and diabetes. In the section exhibits will be found such a variety of topics that almost any subject one can name will be represented in some exhibit. Accidents and complications of local anesthesia, muscle relaxants, geriatric dermatologic practice, occupational dermatoses, human glanders, grain itch, and the newer agents for tuberculosis are just a cross section of what will be available.

The papers for the various scientific sections and the exhibits provide, in effect, a general postgraduate course. The Scientific Assembly will open with the General Scientific Meetings, Monday, June 9, at 9 a. m. and at 2 p. m. These meetings will be held at Navy Pier, where the Registration Bureau also will be located. Only two other places will be used for any of the scientific sections, the Sheraton Hotel and Thorne Hall of Northwestern University. Both are within walking distance of Navy Pier. Registration will begin Sunday, June 8, at 10 a. m. Also located on Navy Pier will be the technical exhibits and eating places. At the Palmer House the House of Delegates will meet on several days; various committees and councils will also meet there. All members of the American Medical Association may attend the meetings of the House and, if they wish, may appear before the reference committees to listen to or participate in discussions on subjects in which they are interested. Those who have not previously attended meetings of the House would be interested in observing how actions proposed by the delegates and others receive attention and sometimes spirited discussion. It is in the House that the policies of the Association are determined. On Thursday evening, June 12, the President of the Association will be honored with a reception and ball in the Grand Ballroom of the Palmer House.

There are many visitors who like to play as well as work while at conventions. Chicago affords many opportunities for satisfying such wishes. Theaters, beaches, museums, and world-renowned dining places provide just a few of the opportunities for diversion. At the headquarters building of the American Medical Association, 535 North Dearborn Street, visitors will be welcome any time from 8:30 a. m. to 4:30 p. m. Guides will be available for tours through the building.

Many fraternities and other groups find the annual meeting a suitable time and excuse for special luncheons and dinners. This year the number of these festivities indicates a growing interest in such activities, which do much to enliven the days and encourage reminiscing. Arrangements have been made for 25 or more luncheons dinners, and meetings of fraternity, alumni, and other organizations. Also meeting is the Woman's Auxiliary, in which the wives of physicians should have a great interest. Of significant note is the meeting of the American Physicians Art Association, which was founded 16 year ago in San Francisco. This organization began with 20 members but now has more than 4,000 in the Unite States, Canada, and Hawaii. Art is a popular hobb among physicians and embraces painting, photography wood carving, sculpturing, and metal work. Physician throughout the country have received trophies as rewards for their art work. The exhibits of physicians handiwork are always among the most popular spots a A. M. A. conventions.

The Secretary of the Association, Dr. George F. Lull has estimated that:

—The Technical Exhibits would, if stretched end t end, reach nearly two miles, and the Scientific Exhibit would stretch for about another mile and a half.

—10,000 chairs will have to be brought into Nav Pier, where the exhibits will be held.

—More than a mile of windows will be blacked-out t provide darkened rooms for lantern slides.

—Provision is being made for 8,000 hours of demonstrations in the Scientific Exhibit.

—There will be more than 220 hours of lectures i the meeting rooms.

—360 firms will exhibit drugs, foods, equipment books, and services for the busy physician.

The 1952 annual meeting of the American Medica Association promises to be one of the best ever held. T all physicians who have not yet made plans to attend, a cordial invitation is extended from all in Chicago wh will participate in the organization of this great meeting

## PENSIONS FOR PHYSICIANS

Recently physicians have been renewing their interest in several pension proposals. Self-employed physicians are now among those groups not under the Social Security Act. An argument frequently used to attempt to persuade older professional persons to urge extension of the act is a so-called bargain feature; for example, to take an extreme case, it is pointed out that a person approaching the age of 65 can pay a minimum of $121.50 during the last 18 months and receive a social security pension of $80 per month for himself at age 65 plus a monthly pension of $40 for his wife at age 65; moreover, the wife's pension would be increased to $60 per month if she outlived her husband. Actuaries estimate that the single premium at age 65 for an insurance company annuity paying these benefits would be about $23,000. Monthly pensions of $120 received once or twice would exceed the minimum cost. The attractiveness of this lure is greatly lessened when a professional man approaching age 65 asks himself: "Who is going to pay for my pension under the Social Security Act if I do not pay for it?" The obvious answer is that the balance of the cost must be paid by the working population, by the profession's younger colleagues, by their neighbors, by their children, and perhaps by their children's children. This is a moral question for all those approaching age 65 who are considering the desirability of coming under the Social Security Act. They must decide whether they want to pay their own way for their own pensions or want younger persons to bear the burden. Moreover, the actions of the House of Delegates of the American Medical Association have indicated other objections to bringing physicians under the Social Security Act, notably, that the pension does not start at age 65 unless the eligible person ceases to earn more than $50 per month and that the extension of Social Security increases the threat of compulsory health insurance.

Physicians should be interested in the Reed-Keogh Bill (H. R. 4371 and H. R. 4373), which would amend the Federal Internal Revenue Code so as to enable self-employed professional persons to exclude from current taxable income amounts sufficient to finance a reasonable retirement annuity. In other words, this bill would provide for the self-employed the counterpart of the pension that the company physician, lawyer, dentist, accountant, engineer, architect, and chemist can expect from his employer. It would be a voluntary pension plan. The purpose of the bill is to remove the discrimination in federal income tax laws initially created in 1942 against the self-employed in the matter of pensions. A self-employed person would, of course, have to declare the annuity as it is received during his retired years as taxable income; that is, the bill provides for tax deferment until the retired years of life of certain portions of income received during the working years of life. The bill does not permit tax avoidance as such.

For several years the Director of the Bureau of Medical Economic Research and the Director of the Bureau of Legal Medicine of the American Medical Association have been cooperating with representatives of more than a score of professional organizations in the study of tax deferments for professional persons. On Jan. 11, 1952, these representatives created a Coordinating Committee on Retirement Benefits for the Professions and the Self-Employed, at the suggestion of the Special Committee on Retirement Benefits for Lawyers of the American Bar Association. The chairman of both committees is Mr. George F. Roberts, a lawyer of New York City. A smaller steering committee of only five members of the coordinating committee has been established. One member, in addition to Mr. Roberts, represents the American Bar Association, and the other three represent the American Medical Association, the American Institute of Accountants, and the American Farm Bureau Federation. The steering committee met in New York City on March 21 and in Washington on March 25 to consider amendments to the Reed-Keogh Bill that would prevent any person from obtaining more than a moderate pension under its tax deferment provisions. The House Ways and Means Committee has decided to hold hearings on this bill, at which time certain amendments will be proposed by the steering committee. It may be that the limits in the bill on the amount of annual income excludable from income taxes, that is, $7,500 or 10% of earned income —whichever is the lesser amount—will be modified. Every self-employed professional man should urge his Congressman to follow closely this bill and urge other self-employed persons, such as farmers, other sole proprietors, and partners to do likewise.

Another notable feature of this bill, which was designed primarily for the retirement needs of the self-employed, is that it offers the same opportunity to the employed to defer taxes. The employed person can exclude annually from current taxable income 10% of his earned income—but not more than $7,500—*minus* any amounts contributed during such taxable year by his employer to a pension plan approved by the Treasury Department. By extending equal opportunity to the employed the lawyers who drafted this bill hope to assure its constitutionality even though it appears unlikely that many employed persons would seek the tax deferment benefits provided.

Each year several billion dollars are paid by employers irrevocably into pension trusts and insurance annuity contracts for the benefit of their employees. Neither the employer nor the employee who is benefited pays any current income tax on this vast sum of money, although the employee will declare the employer's share of his pension taxable income when he receives it years later. Simple justice requires that a similar opportunity for tax deferment be given the self-employed, especially professional men, whose peak earnings, bunched into a comparatively few years, are hit hard by steeply progressive income tax rates and who are forbidden by law to practice their professions as corporations. Either the counterpart of these industrial pension systems should be made available to the self-employed or the provisions of the 1942 Revenue Act providing income tax deferment for the employee for his employer's annual contribution to approved pension plans should be repealed!

## MR. EWING CONTRADICTS HIMSELF

Mr. Oscar R. Ewing, Administrator of the Federal Security Agency, has long been known for his activities in attempting to regulate medical practice and medical care by legislation. According to his statements, one is led to believe that Mr. Ewing does not give the public of this country credit for being able to solve its own problems; only government planners can do this. And yet with his own words Mr. Ewing contradicts himself in the March, 1952, issue of *The Optimist Magazine*.[1] In an article that he presumably authored—at least his name is associated with it—he discusses among other things five requisites for a healthy personality. One of the components, according to Mr. Ewing, is the sense of initiative, and he urges a program for boys that stimulates this sense. Then he admits that these various components of the healthy personality "certainly cannot be bought with money. They cannot be promulgated by legislation." This is quite an admission coming from one who, according to the record, would like to legislate the very basis of a healthy personality—namely, health itself.

## TWO ECONOMISTS OPPOSE COMPULSORY HEALTH INSURANCE

During the past 15 years of agitation for compulsory health insurance there have been published in professional journals in the field of the social sciences a number of articles praising compulsory health insurance. Some of these articles strongly condemn the voluntary health insurance system advocated by the American Medical Association and assail the Association for its criticism of compulsory health insurance. Recently, however, there appeared a 24-page article with a different approach in one of the leading journals in the field of economics, the *uarterly Journal of Economics* (February, 1952), hich is published by Harvard University and edited by 15 of this university's professors of economics. The article, "Compulsory Health Insurance: The Economic Issues" is by Rita Ricardo Campbell and W. Glenn Campbell. While it presents the viewpoint of the authors and not necessarily the viewpoint of the editors, the authors conclude: "It is the opinion of the authors that, at least in the near future, compulsory health insurance should not be adopted in the United States. The general level of health, although far from perfect, compares favorably with that of other countries." The authors estimate that not more than 6 million of the 15.5 million families that receive incomes of less than $2,000 per year (1948) are medically indigent. They also point out that many of the 6 million families would not qualify under compulsory health insurance and could not pay its costs in the form of "earmarked payroll taxes."

Although there are some statements in this article with which physicians generally would disagree, it offers a refreshing viewpoint and can be recommended to the members of the medical profession as an excellent contribution to public information on the question of compulsory health insurance. It reveals without fear of successful contradiction the availability of facts in the health field for economists if they choose to search for and correctly interpret such data.

## POISONING FROM ACCIDENTAL INGESTION OF MEDICINAL IRON

Veeder recently reviewed eight fatal and eight nonfatal cases of accidental poisoning in young children from the ingestion of medicinal iron, usually ferrous sulfate, that were reported in the past four years.[1] Four cases, three of them fatal, were reported in the British literature in 1947.[2] Since then 14 additional cases have appeared in the foreign and American literature.[3] These poisonings indicate that physicians must adopt a more cautious attitude toward these iron preparations. They have long been looked upon as relatively innocuous, and, prior to 1947, few cases of accidental poisoning from iron preparations had been reported.

It was impossible in many cases to determine the actual amount of iron preparation ingested, but the quantity in each case was probably grossly excessive. Shortly after the ingestion of ferrous sulfate tablets, a fairly typical group of symptoms was seen in almost all cases, including bloody vomiting, shock, coma, hypotonia, hyporeflexia, and tarry diarrhea. A period of apparent recovery after the initial shock followed by secondary shock and death was characteristic of a number of the fatal cases. Pathological findings included chiefly necrosis of the gastric and intestinal mucosa with gastrointestinal hemorrhages. Death occurred from several hours to several days after ingestion in the fatal cases.

An appreciation of the potential toxicity of ferrous sulfate and other iron containing medicaments becomes of paramount importance in view of these reports. The frequent presence of proprietary and prescribed iron preparations in the home makes careless handling of them a significant hazard. Also, ferrous sulfate tablets are routinely being given to donors by a number of blood banks at present. The container of these tablets should bear an appropriate precautionary statement.

Most important, when prescribing iron preparations the physician should warn the patient to keep them out of reach of infants and children.

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[1] Ewing, Oscar R.: Toward a Healthy Personality, The Optimist Magazine, pp. 9-10 (March) 1952.

[1] Veeder, B. S.: Iron Poisoning, editorial, J. Pediat. (Jan.) 1952.

[2] Forbes, G.: Poisoning with a Preparation of Iron, Copper, and Manganese, Brit. M. J. **1**: 367 (March 22) 1947. Thomson, J.: Two Cases of Ferrous Sulphate Poisoning, Brit. M. J. **1**: 640 (May 10) 1947.

[3] Thomson, J.: Ferrous Sulphate Poisoning: Its Incidence, Symptomatology, Treatment, and Prevention, Brit. M. J. **1**: 645 (March 18) 1950. Prain, J. H.: Fatal Poisoning of an Infant by Anti-Anaemic Pills Containing Iron, Manganese, and Copper, Brit. M. J. **2**: 1019 (Nov. 5) 1949. Lindquist, N.: Acute Iron "Poisoning," Acta Paediat. **38**: 447, 1949. Smith, R. P.; Jones, C. W., and Cochran, W. E.: Ferrous Sulfate Toxicity: Report of Fatal Case, New England J. Med. **243**: 641 (Oct. 26) 1950. Murphy, J. A., and others: Acute Iron Poisoning: Report of a Case and Review of the Literature, Arch. Pediat. **68**: 303 (July) 1951. Duffy, T. L., and Diehl, A. M.: Ferrous Sulfate Intoxication, J. Pediat. **40**: 1 (Jan.) 1952. Swift, S. C.; Cefalu, V., and Rubell, E. B.: Ferrous Sulfate Poisoning, J. Pediat. **40**: 6 (Jan.) 1952.

# THE CHICAGO SESSION

## AMERICAN MEDICAL ASSOCIATION, ONE HUNDRED AND FIRST ANNUAL SESSION
## CHICAGO, JUNE 9-13, 1952

## OFFICIAL CALL

### To the Officers, Fellows and Members of the American Medical Association

The one hundred and first annual session of the American Medical Association will be held in Chicago, June 9-13, 1952.

The House of Delegates will convene at 10 a. m. Monday, June 9. In the House the representation of the various constituent associations for 1952 is as follows:

| | |
|---|---|
| Alabama | 2 |
| Arizona | 1 |
| Arkansas | 2 |
| California | 11 |
| Colorado | 2 |
| Connecticut | 3 |
| Delaware | 1 |
| District of Columbia | 2 |
| Florida | 3 |
| Georgia | 2 |
| Idaho | 1 |
| Illinois | 10 |
| Indiana | 4 |
| Iowa | 3 |
| Kansas | 2 |
| Kentucky | 2 |
| Louisiana | 2 |
| Maine | 1 |
| Maryland | 2 |
| Massachusetts | 6 |
| Michigan | 6 |
| Minnesota | 3 |
| Mississippi | 1 |
| Missouri | 4 |
| Montana | 1 |
| Nebraska | 2 |
| Nevada | 1 |
| New Hampshire | 1 |
| New Jersey | 5 |
| New Mexico | 1 |
| New York | 20 |
| North Carolina | 3 |
| North Dakota | 1 |
| Ohio | 7 |
| Oklahoma | 2 |
| Oregon | 2 |
| Pennsylvania | 11 |
| Rhode Island | 1 |
| South Carolina | 2 |
| South Dakota | 1 |
| Tennessee | 3 |
| Texas | 6 |
| Utah | 1 |
| Vermont | 1 |
| Virginia | 2 |
| Washington | 3 |
| West Virginia | 2 |
| Wisconsin | 3 |
| Wyoming | 1 |
| Alaska | 1 |
| Hawaii | 1 |
| Isthmian Canal Zone | 1 |
| Puerto Rico | 1 |

The scientific sections of the American Medical Association, the Medical Corps of the Army, the Medical Corps of the Navy, the Medical Corps of the Air Force, the Public Health Service and the Veterans Administration are entitled to one delegate each.

The Scientific Assembly of the Association will open with the General Scientific Meetings to be held Monday, June 9, starting at 9 a. m. in the morning and at 2 p. m. in the afternoon. The Inaugural Meeting, at which the President will be installed, will be held on Tuesday, June 10. The sections will meet Tuesday, Wednesday and Thursday, June 10, 11, 12 as follows:

| CONVENING AT 9 A. M. THE SECTIONS ON | CONVENING AT 2 P. M. THE SECTIONS ON |
|---|---|
| Pediatrics. | Obstetrics and Gynecology. |
| Surgery, General and Abdominal. | Laryngology, Otology and Rhinology. |
| Experimental Medicine and Therapeutics. | Internal Medicine. |
| Nervous and Mental Diseases. | Anesthesiology. |
| Dermatology and Syphilology. | Physical Medicine and Rehabilitation. |
| Gastro-Enterology and Proctology. | Miscellaneous Topics: Session on Allergy. |
| Radiology. | Urology. |
| Diseases of the Chest. | Preventive and Industrial Medicine and Public Health. |
| Military Medicine. | Pathology and Physiology. |
| General Practice. | Orthopedic Surgery. |

The Association for Research in Ophthalmology will meet on Tuesday, Wednesday, and Thursday morning, June 10, 11, and 12, and the Section on Ophthalmology will meet Tuesday, Wednesday, and Thursday afternoon, June 10, 11, and 12.

The Registration Bureau, which will be located on the Navy Pier, will be open from 10 a. m. until 4 p. m. Sunday, June 8, from 8:30 a. m. until 5:30 p. m., Monday, Tuesday, Wednesday and Thursday, June 9, 10, 11, and 12 and from 8:30 a. m. to 12 noon Friday, June 13.

John W. Cline, President.
F. F. Borzell, Speaker, House of Delegates.
George F. Lull, Secretary.

## MEMBERS OF THE HOUSE OF DELEGATES

### A Preliminary Roster of the Legislative Body of the American Medical Association

The list of members of the House of Delegates for the session is incomplete. Following is a list of the holdover members of the House of Delegates and of the newly elected members who have been reported to the Secretary in time to be included:

### *STATE DELEGATES*

ALABAMA
Carl A. Grote, Huntsville
J. Paul Jones, Camden

ARIZONA
Jesse D. Hamer, Phoenix

ARKANSAS
William R. Brooksher, Fort Smith

CALIFORNIA
H. Gordon MacLean, Oakland
E. Vincent Askey, Los Angeles
Dwight L. Wilbur, San Francisco
Donald Cass, Los Angeles
Ralph B. Eusden, Long Beach
R. Stanley Kneeshaw, San Jose
Robertson Ward, San Francisco
Samuel J. McClendon, San Diego
Eugene F. Hoffman, Los Angeles
John Winston Green, Vallejo
Lewis A. Alesen, Los Angeles

COLORADO
William H. Halley, Denver
George A. Unfug, Pueblo

CONNECTICUT
Joseph H. Howard, Bridgeport
Creighton Barker, New Haven
Thomas J. Danaher, Torrington

DELAWARE
Lawrence L. Fitchett, Milford

DISTRICT OF COLUMBIA
Herbert P. Ramsey, Washington
Hugh H. Hussey, Washington

FLORIDA
Homer L. Pearson Jr., Miami
Herbert L. Bryans, Pensacola
Louis M. Orr II, Orlando

GEORGIA
Eustace A. Allen, Atlanta

IDAHO
H. B. Woolley, Idaho Falls

ILLINOIS
Warren W. Furey, Chicago
Percy E. Hopkins, Chicago
Charles H. Phifer, Chicago
Willis I. Lewis, Herrin
Bernard Klein, Joliet
H. Kenneth Scatliff, Chicago
Fred H. Muller, Chicago
Mather Pfeiffenberger, Alton
Harlan English, Danville
Everett P. Coleman, Canton

INDIANA
Homer G. Hamer, Indianapolis
Alfred H. Ellison, South Bend
Franklin S. Crockett, Lafayette
Wendell C. Stover, Boonville

IOWA
George Braunlich, Davenport
Julian E. McFarland, Ames

KANSAS
Laurence S. Nelson Sr., Salina
John M. Porter, Concordia

KENTUCKY
J. Duffy Hancock, Louisville
Bruce Underwood, Louisville

LOUISIANA
Val H. Fuchs, New Orleans
James Q. Graves, Monroe

MAINE
Martyn A. Vickers, Bangor

MARYLAND
Warde B. Allan, Baltimore

MASSACHUSETTS
Charles G. Hayden, Boston
Patrick J. Sullivan, Dalton
James M. Faulkner, Boston
John J. Curley, Leominster
Earle M. Chapman, Boston
Norman A. Welch, Boston

MICHIGAN
William A. Hyland, Grand Rapids
Wyman D. Barrett, Detroit
Willis H. Huron, Iron Mountain
Robert L. Novy, Detroit
Ralph A. Johnson, Detroit
John S. DeTar, Milan

MISSISSIPPI
John P. Culpepper, Hattiesburg

MISSOURI
Robert E. Schlueter, St. Louis
James R. McVay, Kansas City
Warren L. Allee, Eldon
Howard B. Goodrich, Hannibal

MONTANA
Raymond F. Peterson, Butte

NEBRASKA
Joseph D. McCarthy, Omaha
Karl S. J. Hohlen, Lincoln

### NEVADA
Roland W. Stahr, Reno

### NEW JERSEY
J. Wallace Hurff, Newark
Elmer P. Weigel, Plainfield
L. Samuel Sica, Trenton

### NEW MEXICO
John F. Conway, Clovis

### NEW YORK
Walter P. Anderton, New York
Albert F. R. Andresen, Brooklyn
Carlton E. Wertz, Buffalo
Herbert H. Bauckus, Buffalo
Leo F. Schiff, Plattsburg
James R. Reuling, Bayside
Floyd S. Winslow, Rochester
Edward P. Flood, New York
Norman S. Moore, Ithaca
Harold F. R. Brown, Buffalo
J. Stanley Kenney, New York
John J. Masterson, Brooklyn
Maurice J. Dattelbaum, Brooklyn
Peter M. Murray, New York
George W. Kosmak, New York
A. H. Aaron, Buffalo
R. J. Azzari, New York
Edward T. Wentworth, Rochester
Thomas M. D'Angelo, Jackson Heights
Thomas A. McGoldrick, Brooklyn

### NORTH CAROLINA
Charles F. Strosnider, Goldsboro
B. O. Edwards, Asheville
Millard D. Hill, Raleigh

### NORTH DAKOTA
Willard A. Wright, Williston

### OHIO
Carl A. Lincke, Carrollton
George A. Woodhouse, Pleasant Hill
William M. Skipp, Youngstown
L. Howard Schriver, Cincinnati
Clifford C. Sherburne, Columbus
Arthur A. Brindley, Toledo
Frank M. Wiseley, Findlay

### OKLAHOMA
James Stevenson, Tulsa
John F. Burton, Oklahoma City

### OREGON
Raymond M. McKeown, Coos Bay
William W. Baum, Salem

### PENNSYLVANIA
William Bates, Philadelphia
Francis F. Borzell, Philadelphia
Harold B. Gardner, Pittsburgh
Charles L. Shafer, Kingston
Howard K. Petry, Harrisburg
William L. Estes Jr., Bethlehem
James L. Whitehill, Rochester
George S. Klump, Williamsport
Elmer Hess, Erie
James Z. Appel, Lancaster
G. C. Engel, Philadelphia

### RHODE ISLAND
Charles L. Farrell, Pawtucket

### SOUTH CAROLINA
Julian P. Price, Florence
William Weston Jr., Columbia

### SOUTH DAKOTA
H. Russell Brown, Watertown

### TENNESSEE
Robert B. Wood, Knoxville

### TEXAS
Robert B. Homan Jr., El Paso
Allen T. Stewart, Lubbock
John K. Glen, Houston

### UTAH
George M. Fister, Ogden

### VERMONT
James P. Hammond, Bennington

### VIRGINIA
J. Morrison Hutcheson, Richmond
Vincent W. Archer, Charlottesville

### WASHINGTON
Ross D. Wright, Tacoma
Raymond L. Zech, Seattle
A. G. Young, Wenatchee

### WEST VIRGINIA
Walter E. Vest, Huntington
Frank J. Holroyd, Princeton

### WISCONSIN
Dexter H. Witte, Milwaukee
Stephen E. Gavin, Fond du Lac
William D. Stovall, Madison

### WYOMING
Roscoe H. Reeve, Casper

### HAWAII
Alfred S. Hartwell, Honolulu

### ISTHMIAN CANAL ZONE
Norman W. Elton, Ancon

### PUERTO RICO
F. Sanchez Castano, Vega Baja

## *DELEGATES FROM THE SECTIONS AND GOVERNMENT SERVICES*

### ANESTHESIOLOGY
Henry S. Ruth, Haverford, Pa.

### DERMATOLOGY AND SYPHILOLOGY
Everett C. Fox, Dallas, Texas

### DISEASES OF THE CHEST
Hollis E. Johnson, Nashville, Tenn.

### EXPERIMENTAL MEDICINE AND THERAPEUTICS
Edgar V. Allen, Rochester, Minn.

### GASTRO-ENTEROLOGY AND PROCTOLOGY
Louis A. Buie, Rochester, Minn.

### GENERAL PRACTICE
Paul A. Davis, Akron, Ohio

### INTERNAL MEDICINE
Charles T. Stone, Galveston, Texas

### LARYNGOLOGY, OTOLOGY AND RHINOLOGY
Gordon F. Harkness, Davenport, Iowa

### MILITARY MEDICINE
Russel V. Lee, Palo Alto, Calif.

### NERVOUS AND MENTAL DISEASES
Hans H. Reese, Madison, Wis.

### OBSTETRICS AND GYNECOLOGY
Harvey B. Matthews, Brooklyn

### OPHTHALMOLOGY
William L. Benedict, Rochester, Minn.

### ORTHOPEDIC SURGERY
H. Relton McCarroll, St. Louis

### PATHOLOGY AND PHYSIOLOGY
M. G. Westmoreland, Chicago

### PEDIATRICS
W. L. Crawford, Rockford, Ill.

### PHYSICAL MEDICINE AND REHABILITATION
Frank H. Krusen, Rochester, Minn.

### PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH
R. T. Johnstone, Los Angeles

### RADIOLOGY
Byrl R. Kirklin, Rochester, Minn.

### SURGERY, GENERAL AND ABDOMINAL
Grover C. Penberthy, Detroit

### UROLOGY
J. J. Crane, Los Angeles

### UNITED STATES ARMY
Silas B. Hays

### UNITED STATES NAVY
Clarence J. Brown

### UNITED STATES AIR FORCE
Dan C. Ogle

### PUBLIC HEALTH SERVICE
W. Palmer Dearing

### VETERANS ADMINISTRATION
Arden Freer

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There will be present also two students representing the Student American Medical Association.

## OFFICERS OF THE AMERICAN MEDICAL ASSOCIATION, 1951-1952

President—John W. Cline, San Francisco.

President-Elect—Louis H. Bauer, Hempstead, N. Y.

Vice President—Oscar B. Hunter,* Washington, D. C.

Secretary and General Manager—George F. Lull, Chicago.

Asst. Secretary—Ernest B. Howard, Chicago.

Treasurer—J. J. Moore, Chicago.

Speaker, House of Delegates—F. F. Borzell, Philadelphia.

Vice Speaker, House of Delegates—James R. Reuling, Bayside, N. Y.

Editor—Austin Smith, Chicago.

Business Manager—Thomas R. Gardiner, Chicago.

Board of Trustees—D. H. Murray, Chairman, Napa, Calif., 1952; E. J. McCormick, Toledo, Ohio, 1952; E. S. Hamilton, Kankakee, Ill., 1953; G. Gundersen, LaCrosse, Wis., 1953; D. B. Allman, Atlantic City, N. J., 1954; F. J. L. Blasingame, Wharton, Texas, 1954; L. W. Larson, Bismarck, N. D., 1955; T. P. Murdock, Meriden, Conn., 1955; W. B. Martin, Norfolk, Va., 1956; the President and the President-Elect.

### STANDING COMMITTEES OF THE HOUSE OF DELEGATES

Judicial Council—H. L. Pearson Jr., Miami, Fla., 1952; J. B. Lukins, Louisville, Ky., 1953; E. R. Cunniffe, Chairman, New York, 1954; L. A. Buie, Rochester, Minn., 1955; W. F. Donaldson, Pittsburgh, 1956; G. F. Lull, Secretary, Chicago.

Council on Medical Education and Hospitals—H. G. Weiskotten, Chairman, Skaneateles, N. Y., 1952; V. Johnson, Rochester, Minn., 1953; W. L. Pressly, Due West, S. C., 1954; H. B. Stone, Baltimore, 1955; G. A. Caldwell, New Orleans, 1956; R. L. Haden, Crozet, Va., 1957; F. D. Murphy, Lawrence, Kan., 1958; D. G. Anderson, Secretary, Chicago.

Council on Scientific Assembly—S. P. Reimann, Philadelphia, 1952; A. McMahon, St. Louis, 1953; C. H. Phifer, Chicago, 1954; C. A. Lincke, Carrollton, Ohio, 1955; M. E. DeBakey, Houston, Texas, 1956; H. R. Viets, Chairman, Boston, 1957; S. P. Newman, Denver, 1958; L. H. Bauer, Hempstead, N. Y., ex officio.

Council on Medical Service—E. Hess, Erie, Pa., 1952; T. A. McGoldrick, Brooklyn, 1952; J. D. Hamer, Phoenix, Ariz., 1953; J. R. McVay, Chairman, Kansas City, Mo., 1953; H. B. Mulholland, Charlottesville, Va., 1954; J. D. McCarthy, Omaha, 1954; E. L. Henderson, Louisville, Ky.; J. W. Cline, San Francisco; D. B. Allman, Atlantic City, N. J.; Mr. T. A. Hendricks, Secretary, Chicago.

Council on Constitution and By-Laws—J. Stevenson, Tulsa, Okla., 1952; S. H. Osborn, Hartford, Conn., 1953; F. S. Winslow, Rochester, N. Y. 1954; B. E. Pickett Sr., Carrizo Springs, Texas, 1955; L. A. Buie, Chairman, Rochester, Minn., 1956; E. S. Hamilton, Kankakee, Ill.; the President and the Speaker and Vice Speaker of the House of Delegates.

### STANDING COMMITTEES OF THE BOARD OF TRUSTEES

Council on Pharmacy and Chemistry—W. C. Cutting, San Francisco, 1952; J. Stokes Jr., Philadelphia, 1952; C. G. Lane, Boston, 1952; C. A. Dragstedt, Chicago, 1952; J. P. Leake, Washington, D. C., 1953; K. S. Grimson, Durham, N. C., 1953; H. K. Beecher, Boston, 1953; M. Fishbein, Chicago, 1954; G. W. McCoy, New Orleans, 1954; P. H. Long, Brooklyn, 1954; E. M. Nelson, Washington, D. C., 1954; T. Sollmann, Chairman, Cleveland, 1955; I. Starr, Philadelphia, 1955; J. Hayman, Cleveland, 1955; E. M. K. Geiling, Chicago, 1956; J. Bordley III, Cooperstown, N. Y., 1956; W. G. Workman, Bethesda, Md., 1956; R. T. Stormont, Secretary, Chicago.

Council on Physical Medicine and Rehabilitation—H. A. Rusk, New York, 1952; F. H. Krusen, Chairman, Rochester, Minn., 1952; S. Warren, Boston, 1952; A. C. Cipollaro, New York, 1953; M. A. Bowie, Swarthmore, Pa., 1953; G. M. Piersol, Philadelphia, 1953; A. L. Watkins, Boston, 1953; W. W. Coblentz, Washington, D. C., 1954; W. J. Zeiter, Cleveland, 1954; D. Vail, Chicago, 1954; D. M. Lierle, Iowa City, 1955; F. R. Ober, Boston, 1955; O. Glasser, Cleveland, 1955; R. E. DeForest, Secretary, Chicago.

Council on Foods and Nutrition—W. J. Darby, Nashville, Tenn., 1952; G. R. Cowgill, New Haven, Conn., 1952; C. S. Ladd, Washington, D. C., 1953; J. B. Youmans, Nashville, Tenn., 1953; C. S. Davidson, Boston, 1954; L. A. Maynard, New York, 1955; H. B. Lewis, Ann Arbor, Mich., 1955; J. S. McLester, Birmingham, Ala., 1955; C. A. Smith, Boston, 1955; P. C. Jeans, Chairman, Iowa City, 1956; C. A. Elvehjem, Madison, Wis., 1956; J. R. Wilson, Secretary, Chicago.

Council on Industrial Health—R. T. Johnstone, Los Angeles, 1952; A. J. Lanza, Chairman, New York, 1952; C. D. Selby, Port Huron, Mich., 1952; W. F. Draper, Washington, D. C., 1953; O. A. Sander, Milwaukee, 1953; H. H. Kessler, Newark, N. J., 1953; W. P. Shepard, San Francisco, 1954; L. E. Hamlin, Chicago, 1954; R. A. Kehoe, Cincinnati, 1954; J. H. Sterner, Rochester, N. Y., 1955; M. N. Newquist, New York, 1955; J. S. Simmons, Boston, 1955; C. M. Peterson, Secretary, Chicago.

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*Deceased.

Council on National Emergency Medical Service—J. C. Sargent, Chairman, Milwaukee, 1952; P. H. Long, Brooklyn, 1952; S. Warren, Los Angeles, 1953; H. B. Wright, Cleveland, 1953; A. A. Brindley, Toledo, Ohio, 1954; F. H. Lahey, Boston, 1954; H. S. Diehl, Minneapolis, 1955; R. L. Meiling, Columbus, Ohio, 1955; R. L. Sensenich, South Bend, Ind., 1956; H. C. Lueth, Omaha, 1956; Mr. C. J. Stetler, Secretary, Chicago.

Council on Rural Health—F. S. Crockett, Chairman, Lafayette, Ind., 1952; C. S. Mundy, Toledo, Ohio, 1952; F. A. Humphrey, Ft. Collins, Colo., 1952; D. G. Miller Jr., Morgantown, Ky., 1952; N. H. Gardner, E. Hampton, Conn., 1953; J. P. Jones, Camden, Ala., 1953; J. F. Doughty, Tracy, Calif., 1953; A. T. Stewart, Lubbock, Texas, 1954; W. J. Weese, Ontario, Ore., 1954; W. A. Wright, Williston, N. D., 1954; Mrs. A. Hibbard, Secretary, Chicago.

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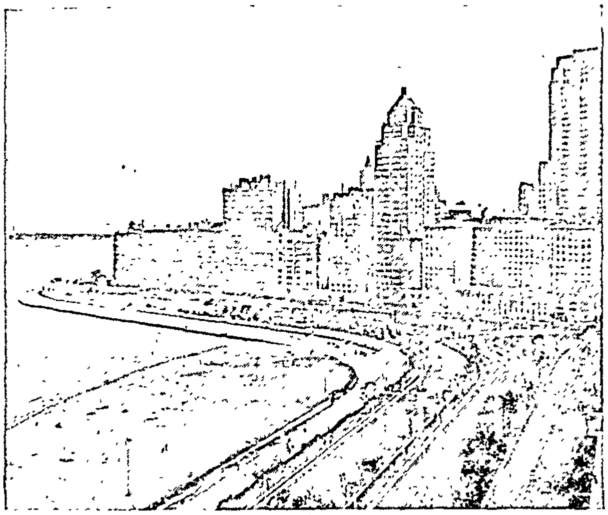
The Secretary, Assistant Secretary and Editor are ex officio members of all Standing Committees.

# CHICAGO—1952

The estimated population of the metropolitan Chicago area, which includes Cook, Kane, Lake, Dupage, and Will counties, and Lake County, Indiana, is 5,495,364, and of the city of Chicago proper it is 3,620,962. In the more recent years the American Medical Association has held its annual sessions in Chicago in 1918, 1924, 1944, and 1948. It would seem unnecessary, therefore, to discuss in detail at this time the facilities and the interests that this great city has for American physicians. Chicago's growth in science, art, finance, manufacturing, and as a medical center has been phenomenal, and its access to various modern methods of transportation is more direct than that of any other city in the United States.



The Oak Street Beach. Navy Pier is in the background far to the left.

The center of activities of the 1952 annual session of the American Medical Association will be the great Navy Pier, which extends nearly a mile into Lake Michigan from the foot of Grand Avenue and which is less than a mile from the headquarters' building of the Association. As the 292 foot wide pier can accommodate comfortably thousands of persons for convention purposes, most of the scientific sessions, the registration bureau, and all the scientific and technical exhibits will be housed there.

The Navy Pier is accessible by streetcar, motor bus, and taxi. On entering the pier, the visitor to the annual session will walk up a ramp to the second floor and register as usual at a special registration desk; then he will pass through the more than 350 technical exhibits, then on through the 300 scientific exhibits, a detailed description of which appears elsewhere in this issue of The Journal. All exhibits are on the upper deck of the pier. Further down the pier, the visitor will come to the large halls that have been specially built for lectures, color television, motion pictures, and for the scientific section meetings, except for the Section on Ophthalmology, which will hold its meetings at Thorne Hall on the campus of Northwestern University Medical School, only a short distance north of the Navy Pier, and the Sections on Laryngology, Otology and Rhinology and Surgery, General and Abdominal, which will meet in the Ballroom of the Sheraton Hotel.

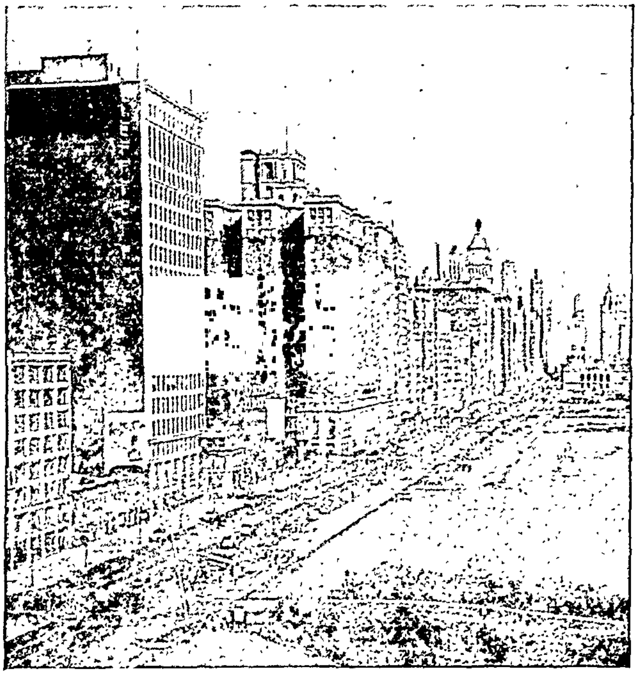
### Chicago Hotels

The large, centrally located hotels will accommodate thousands of visitors. A short distance to the north and south over beautiful driveways and to the west are many other hotels, some facing Lake Michigan and Lincoln Park, only a few minutes from Navy Pier and the loop by good transportation. The House of Delegates will meet at the Palmer House in the loop. The Woman's Auxiliary will meet at the Conrad Hilton Hotel on South Michigan Boulevard, and their annual dinner will be at the nearby Blackstone Hotel, Thursday, June 12. Many of the special societies that will meet either before or after the annual session of the A. M. A. are scheduled for other Chicago hotels.

It is suggested that physicians who plan to attend the annual session and who have not already secured hotel reservations, write to Dr. Fred H. Muller, 105 West Madison St., Room 1707, Chicago 2, Ill., using the application form that appears in the advertising pages of this issue of The Journal.

### Features of Medical Interest

Chicago's medical schools are known throughout the world. The University of Illinois (which includes Rush Medical College), the University of Chicago, Northwestern University, Loyola University Medical School, and the Chicago Medical College have thousands of alumni who will want to renew acquaintance with their alma maters. Cook County Hospital, one of the largest in the world, and many other great hospitals in Chicago, will be of interest to physicians who attend this session. There are research institutes at many of the universities and hospitals that will be of special interest to medical scientists. The Chicago Department of Health will offer an opportunity to study its methods and will make available visits to institutions under municipal control, such as the Municipal Tuberculosis Sanitarium and the contagious disease hospitals. On the West Side near the Cook County Hospital, a great medical center is being developed that will include several medical schools and hospitals. While this great center will require years to complete, a considerable part of the area has already been cleared for the new buildings that will be constructed in that area.



Looking North on Michigan Avenue from near 12th Street

# HEADQUARTERS OF THE AMERICAN MEDICAL ASSOCIATION

Members and Fellows are cordially invited to visit the headquarters of the American Medical Association, 535 North Dearborn Street, corner of Dearborn Street and Grand Avenue, at any time during the Annual Session, June 9 to 13, from 8:30 a. m. to 4:30 p. m. The American Medical Association Building is a nine story stone structure which houses, except for the Washington Office, all activities of the Association, including its printing plant. For the benefit of visiting members and Fellows, there is available a staff of guides familiar with the functions of the Association. In addition to the printing plant, including a press room, composing room, mailing room and bindery, which occupy the first three floors and basement, the departments include the Bureau of Medical Economic Research; Bureau of Legal Medicine and Legislation; Bureau of Exhibits; Council on Medical Service; Council on Industrial Health; Council on Pharmacy and Chemistry; Council on Physical Medicine and Rehabilitation; Council on Foods and Nutrition; Chemical and Microbiological Laboratories; Bureau of Health Education; Bureau of Investigation; Council on Medical Education and Hospitals; Directory Department, including a biographic index of physicians; *Today's Health* Circulation Department; Office of the Secretary and General Manager; Council on National Emergency Medical Service; Council on Rural Health; Offices of the Committee on Legislation, Commission on Chronic Illness, Student A. M. A. and American Medical Education Foundation; Office of the Business Manager; Advertising Department; Accounting Department; Fellowship, Membership, and Subscription Department; Public and Press Relations Department; State Journal Advertising Bureau; Office of the Editor; Editorial Department, including News Department, Foreign Abstracting Department, Manuscript Editing Department; *Today's Health* Editorial Office; Library; Assembly Room, and Board of Trustees Room.

A. M. A. Headquarters 535 North Dearborn Street

Too limited a number of members of the American Medical Association are aware of the facilities available at the headquarters of the Association for carrying on its work, including the physical equipment for the printing of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the specialty journals, namely, *American Journal of Diseases of Children, Archives of Dermatology and Syphilology, Archives of Internal Medicine, Archives of Neurology an Psychiatry, Archives of Ophthalmology, Archives of Otolaryngology, Archives of Pathology Archives of Surgery*, and *Archives of Industrial Hygiene an Occupational Medicine; Today' Health; American Medical Directory; Quarterly Cumulativ Index Medicus,* and by-produc of THE JOURNAL and of the Press of the American Medica Association.

While it is realized that those who attend the Annual Sessio of the American Medical Association will be well occupied, it hoped that each of them will find at least one hour sometim during the week for visiting the Headquarters of the Associatio to observe for himself something of the work that is being don

# REGISTRATION

The Registration Bureau will be located on Navy Pier. An information bureau will be operated in connection with the Registration Bureau.

### Who May Register

Member and Service Fellows, active and associate members, Affiliate, Associate and Honorary Fellows, and invited guests may take part in the work of the sections and may register for attendance at meetings.

Active and associate members in good standing in the American Medical Association are those members of component county medical societies and of constituent state and territorial medical associations whose names are officially reported for enrolment to the Secretary of the American Medical Association by the secretaries of the constituent medical associations and who have paid their annual American Medical Association membership dues, which this year are $25, to be paid through constituent state medical associations.

### Register Early

Members and Fellows living in the Chicago area, as well as all other physicians who are in Chicago on Sunday and Monday, should register as early as possible. They may register on Sunday, June 8, between 10 a. m. and 4 p. m.

The names and Chicago addresses of those who register will be included in the issue of the *Daily Bulletin* appearing the next day, and this will enable visiting physicians to find friends who have registered.

### Suggestions That Will Facilitate Registration

Members and Fellows should fill out completely the spaces both sections of the front of the registration card. These car will be found on the tables.

Entries on the registration card should be written plainly, *printed,* as the cards are given to the printer to use as "cop for the *Daily Bulletin,* which appears on Monday, Tuesda Wednesday, and Thursday mornings during the week of the se sion.

Members who have their membership pocket cards with the can be registered with little or no delay. They should prese the filled out registration card, together with the pocket card, one of the windows marked "Registration by Pocket Car There the clerk will compare the two cards, stamp the poc card and return it and supply the member with a badge and copy of the official program.

Members and Fellows may obtain Advance Registration Car which will greatly facilitate their registration, by writing to "Advance Registrations Department, American Medical As ciation, 535 N. Dearborn St., Chicago 10." It is suggested t requests for advance registration be sent in at the earliest p sible date in order that the cards may be mailed out shor before the session. If a member or Fellow has received an vance Registration Card, he need present only that card at Registration Bureau in order to be registered immediately receive his official program and badge.

### Registration for General Officers and Delegates at the Palmer House

General officers of the American Medical Association and members of the House of Delegates may register for the Scientific Assembly outside the Red Lacquer Room of the Palmer House. This arrangement is made for the convenience of members of the House of Delegates, which will convene on Monday morning at 10 o'clock in the Red Lacquer Room of the Palmer House. Delegates are requested to register for the Scientific Assembly before presenting credentials to the Reference Committee on Credentials of the House of Delegates. Registration of delegates for the Scientific Assembly will begin at 8 o'clock Monday morning, June 9, and delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House. If any delegate or officer is in Chicago on Sunday, June 8, he may register for the Scientific Assembly in the Foyer of the Red Lacquer Room at the Palmer House.

### Registration for Lay Executive Secretaries

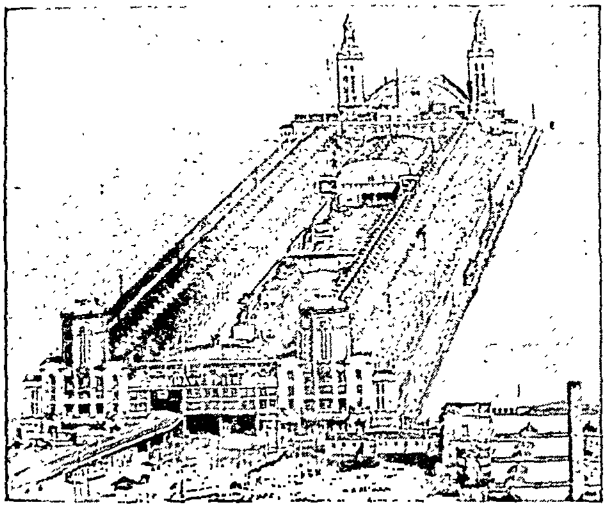
Lay executive secretaries of component and constituent associations may register any time Saturday or Sunday, June 7 or 8, or any time after 12 noon Monday, June 9 during the week of the session at the House of Delegates registration desk in the Palmer House.

## TRANSPORTATION

It is suggested that those physicians who contemplate traveling to Chicago to attend the annual session of the Association secure information concerning railroad and airplane travel directly from their local ticket agents, who are in a position to give them information regarding train or plane schedules and fares.

### Special Bus Service

Special buses between Loop hotels and Navy Pier will serve those attending the Chicago Session. Two routes have been established by the Chicago Transit Authority, one of which will serve the south Loop hotels and the other those in the northern part of the Loop. There will be express service to the Pier, at reasonable fares, every 15 minutes, from 8 to 10 a. m. and every half hour thereafter. Extra buses will be available at the pier each afternoon during the Session between 4:30 and 6:00 p. m. In addition, regular buses run on Grand Avenue directly to the Pier, and transfers for the Grand Avenue line may be obtained from the subway or any of the bus and streetcar lines that run North and South.



The Navy Pier, where the exhibits and most of the section meetings will be held.

One of the many Chicago beaches

## MEETING PLACES

House of Delegates: Red Lacquer Room, Palmer House, 15 East Monroe Street.

General Scientific Meetings: Auditorium, Navy Pier.

Inaugural Meeting: Grand Ballroom, Palmer House.

General Headquarters, Registration Bureau, Scientific Exhibit, Technical Exhibits and Information Bureau: Navy Pier.

SECTIONS OF SCIENTIFIC ASSEMBLY

Anesthesiology: Room 7, Navy Pier.

Dermatology and Syphilology: Room 8, Navy Pier.

Diseases of the Chest: Room 9, Navy Pier.

Experimental Medicine and Therapeutics: Room 11, Navy Pier.

Gastro-Enterology and Proctology: Room 4, Navy Pier.

General Practice: Room 2, Navy Pier.

Internal Medicine: Room 11, Navy Pier.

Laryngology, Otology and Rhinology: Ballroom, Sheraton Hotel, 505 North Michigan Avenue.

Military Medicine: Room 6, Navy Pier.

Miscellaneous Topics, Session on Allergy: Room 4, Navy Pier.

Nervous and Mental Diseases: Room 7, Navy Pier.

Obstetrics and Gynecology: Room 5, Navy Pier.

Ophthalmology and Association for Research in Ophthalmology: Thorne Hall, Northwestern University, 710 Lake Shore Drive.

Orthopedic Surgery: Room 2, Navy Pier.

Pathology and Physiology: Room 6, Navy Pier.

Pediatrics: Room 5, Navy Pier.

Physical Medicine and Rehabilitation: Room 8, Navy Pier.

Preventive and Industrial Medicine and Public Health: Room 9, Navy Pier.

Radiology: Room 1, Navy Pier.

Surgery, General and Abdominal: Ballroom, Sheraton Hotel, 505 North Michigan Avenue.

Urology: Room 1, Navy Pier.

# LOCAL COMMITTEE ON ARRANGEMENTS

## General Committee

Warren W. Furey, General Chairman
H. Kenneth Scatliff, President,
Chicago Medical Society, Co-Chairman

HONORARY VICE CHAIRMEN

C. Paul White, Past President, Illinois State Medical Society
Leo P. A. Sweeney, President, Illinois State Medical Society
Eugene T. McEnery, President-Elect, Chicago Medical Society

Robert S. Berghoff
Warren H. Cole
Everett P. Coleman
Nathan S. Davis III
Thomas P. Foley
Harlan English
Rolland L. Green
Edwin S. Hamilton
Oscar Hawkinson
Robert H. Hayes
Julius H. Hess
Harry M. Hedge
Percy E. Hopkins
James H. Hutton
Bernard Klein
Willis I. Lewis
Malcolm T. MacEachern
Hugh N. MacKechnie
Frank F. Maple
J. Roscoe Miller
J. J. Moore
Fred H. Muller
G. Henry Mundt
Irving H. Neece
J. Mather Pfeiffenberger
Charles H. Phifer
H. Prather Saunders
James P. Simonds
James S. Templeton
Willard O. Thompson
Edward H. Weld

SECRETARIES

Harold M. Camp
Walter C. Bornmeier

The Buckingham Fountain in Grant Park

## Subcommittee on Woman's Auxiliary

CO-CHAIRMEN

Mrs. Henry L. Schmitz
Mrs. Warren W. Young

## Subcommittees on Sections and Section Work

ANESTHESIOLOGY

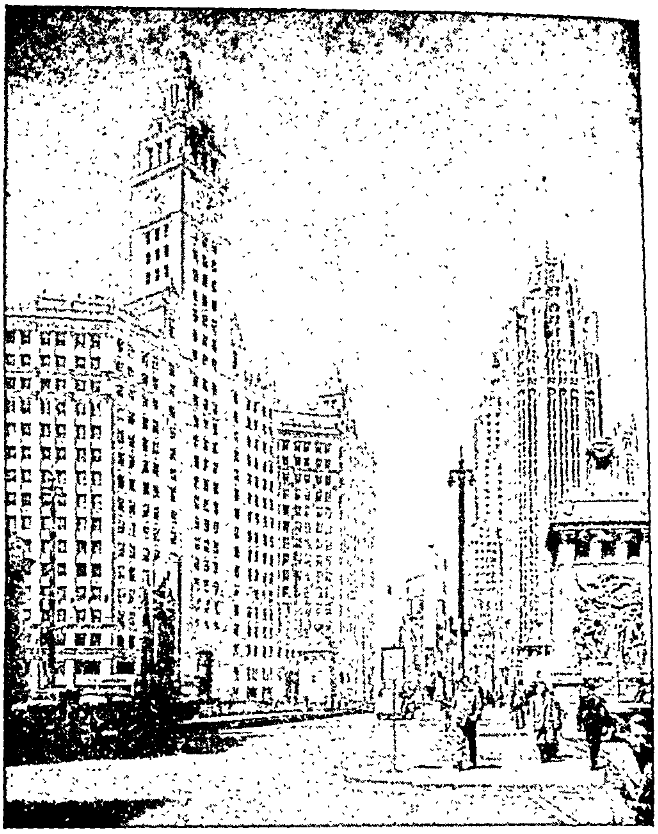
Lewis C. Hitchner Jr., Chairman
E. M. Dewhirst
Lloyd A. Gittelson

DERMATOLOGY AND SYPHILOLOGY

James R. Webster, Chairman
William K. Ford
Tibor Benedek
Harry M. Hedge

EXPERIMENTAL MEDICINE AND THERAPEUTICS

Carl A. Dragstedt, Chairman
Lowell T. Coggeshall
Stanley W. Olson
John J. Sheinin



Looking North from Michigan Avenue Bridge

GASTRO-ENTEROLOGY AND PROCTOLOGY

F. C. Val Dez, Chairman
Herbert C. Breuhaus
Thomas D. Masters
G. V. Pontius

GENERAL PRACTICE

Pliny R. Blodgett, Chairman
Harry V. Carter
Ernest E. Davis
Amos DeFeo
Walter O. Erxleben
Peter H. Furno
Andy Hall
Tom Kirkwood
Richard V. Kochanski
George Koptik
Ray E. Logan
Harold R. Marsh
Albert Mickow
John W. O'Donnell
Joseph B. Schreiter
H. L. Wallin

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Wright Adams, Chairman
George A. Hellmuth
Frank B. Kelly
Ernest G. McEwen
Edgar McL. Stevenson

LARYNGOLOGY, OTOLOGY AND RHINOLOGY

Lawrence J. Lawson, Chairman
Walter D. Stevenson Jr.
Gail R. Soper

MILITARY MEDICINE

Carl F. Steinhoff, Chairman
Earl E. Barth
Stanley Fahlstrom
George F. O'Brien
P. V. Dilts

NERVOUS AND MENTAL DISEASES

Frank G. Norbury, Chairman
Leo A. Kaplan
Roy R. Grinker

### Obstetrics and Gynecology

Edwin J. DeCosta, Chairman

H. Close Hesseltine
Harold W. Miller
Frank A. Morrison
Janet Towne

### Ophthalmology

Maurice M. Hoeltgen, Chairman

John A. Kerst
G. Henry Mundt Jr.

### Orthopedic Surgery

Samuel W. Banks, Chairman

Clinton L. Compere
William J. Schnute
Lyman Smith

### Pathology and Physiology

Franklin J. Moore, Chairman

Donald O. Manshardt
Coye C. Mason
John F. Sheehan
George E. Wakerlin
Granville Bennett
William B. Wartman

### Diseases of the Chest

Eugene L. Walsh, Chairman

Darrell H. Trumpe
John J. Brosnan
George W. Holmes
William M. Lees

### Physical Medicine and Rehabilitation

Charles O. Molander, Chairman

Milton G. Schmidt
Irvin F. Hummon Jr.

### Preventive and Industrial Medicine and Public Health

Charles Drueck, Chairman

Edward A. Piszczek
Carlo Scuderi
Roland R. Cross

### Pediatrics

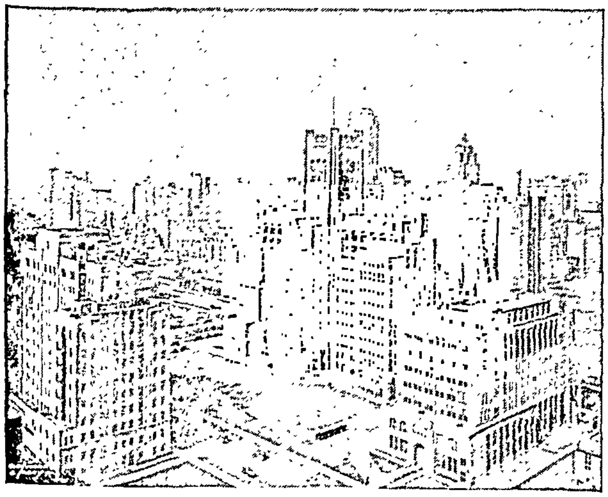
John L. Reichert, Chairman

Alfred S. Traisman
Craig D. Butler
George L. Drennan

### Radiology

Benjamin D. Braun, Chairman

Fred H. Decker
Cesare Gianturco
Roger Harvey
Frank L. Hussey
John H. Gilmore



**Northwestern University Medical School on Chicago Avenue. Passavant Hospital is on the left.**

### Surgery, General and Abdominal

Harvey S. Allen, Chairman

William H. Hazlett
Harry A. Oberhelman
Gordon F. Moore

### Urology

Joseph H. Kiefer, Chairman

Norris J. Heckel
C. G. Weller
P. H. McNulty

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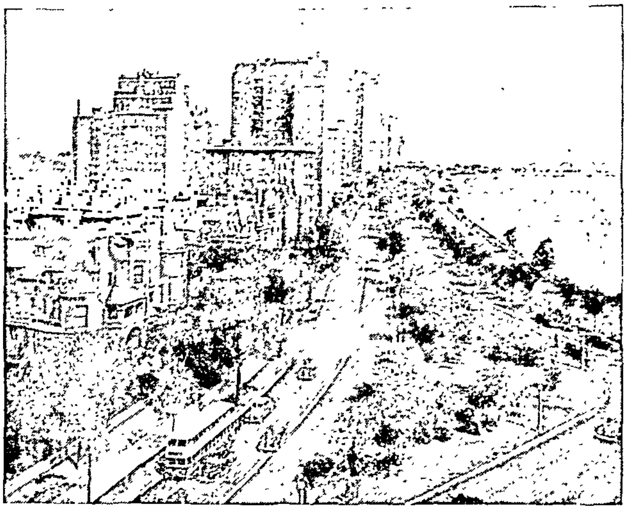
Fred L. Glenn
Hugh N. MacKechnie
Joseph S. Lundholm
Frank G. Norbury
Joseph T. O'Neil
Charles Papik
James P. Simonds
John V. Prohaska
Anders Weigen



**Lake Shore Drive looking North from Oak Street**

### Subcommittee on Registration and Information

F. Lee Stone, Chairman
Joseph J. Mullen, Vice-Chairman

William E. Adams
Charles Allison
Robert A. Arens
Russell Barrett
Charles W. Bibb
Francis E. Bihss
Paul Blackburn
E. A. Blair
A. L. Burdick
Frank Deneen
William C. Doepp
Charles P. Eck
James P. Fitzgibbons
Wayne W. Flora
David B. Freeman
Willard W. Fullerton
S. M. Goldberger
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John T. Gregorio
Charles H. Hulick
Gustav Kaufmann
John L. Keeley
W. E. Kittler
T. G. Knappenberger
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A. J. Linowiecki
J. H. Maloney
Lorne W. Mason
W. A. Menaghan
Burtis E. Montgomery
R. F. Millet
Robert R. Mustell
Warner H. Newcomb
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L. W. Peterson
Charles E. Pope
J. C. Redington
V. V. Rockey
Charles Roth
C. C. Saelhof
Frederick W. Slobe
Joseph C. Sodaro
F. J. Stewart
S. J. Sullivan
L. S. Tichy
D. H. Trumpe
M. E. Uznanski
Karl Vehe
John C. Wall
Warren W. Young

### Subcommittee on Publicity and Printing

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Walter C. Bornemeier, Co-Chairman

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Roy Hutchison
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Walter Lawrence
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C. W. Stigman
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Elmer V. McCarthy, Chairman

Richard M. Davison
Robert L. French
Edward C. Helfers
G. E. Johnson
M. I. Kaplan
Otto Konzelman
Paul Minter
F. M. Nicholson
Caesar Portes
J. S. Schriver
Milan M. Wasick
Samuel J. Zakon

### Subcommittee on House of Delegates Dinner

PERCY E. HOPKINS, Chairman

HARLAN ENGLISH
EVERETT P. COLEMAN
WILLIS I. LEWIS
CHARLES H. PHIFER
H. KENNETH SCATLIFF

### Subcommittee on Scientific Exhibit

WILLARD O. THOMPSON, Chairman

EDWARD L. COMPERE
HARRY J. DOOLEY
CHARLES E. GALLOWAY
WILLIAM D. JACK
C. K. JONES
ROBERT E. LEE
HAROLD W. MILLER
DAVID SLIGHT
ALBERT VANDERKLOOT

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W. C. BLIM
PAUL C. BUCY
CASPER M. EPSTEEN
WALTER C. HAMMOND
R. C. OLDFIELD
O. W. REST
J. E. SIEDLINSKI
GEORGE TURNER
JOHN R. WOLFF
WALTER H. YOUNG

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ROBERT H. HAYES, Chairman

RICHARD GREENING
ROBERT S. BERGHOFF
MATHER PFEIFFENBERGER
BERNARD KLEIN
C. PAUL WHITE

### Subcommittee on Golf

ROBERT J. HAWKINS, Chairman

FRANK H. FOWLER
HARRY E. MOCK
C. E. SHANNON
H. BASCOM THOMAS

### Subcommittee on Clubs and Alumni Reunions

ARKELL N. VAUGHN, Chairman

JACOB E. REISCH
HOWARD B. CARROLL
LAWRENCE D. RYAN

### Subcommittee on Foreign Guests

ERNEST E. IRONS, Chairman

G. HENRY MUNDT
CHARLES P. BLAIR
OSCAR HAWKINSON

### Subcommittee on Television

WARREN H. COLE, Chairman

WALTER G. MADDOCK, Co-Chairman

EDWARD L. COMPERE
GEORGE H. GARDNER
JEROME HEAD
WILLIAM A. MANN
VINCENT J. O'CONOR
NORMAN G. PARRY
PAUL S. RHOADS
GEORGE E. SHAMBAUGH JR.
RALPH M. HUESTON

## ENTERTAINMENT

### Inaugural Meeting

The Inaugural Meeting, at which the President will be installed, will be held in the Grand Ballroom of the Palmer House, Tuesday evening, June 10.

### President's Reception and Ball

The President of the Association will be honored with a reception and ball to be held on Thursday evening, June 12, in the Grand Ballroom of the Palmer House.

### Luncheons, Dinners and Meetings of Fraternity, Alumni and Other Organizations

ALPHA KAPPA KAPPA, Luncheon, Furniture Club, Wednesday, June 11, 12:30 p. m.

ALPHA OMEGA ALPHA, Dinner, Palmer House, Thursday, June 12, 6:30 p. m.

COLLEGE OF MEDICAL EVANGELISTS, Dinner, Wednesday, June 11, 7:30 p. m.

COLUMBIA UNIVERSITY—COLLEGE OF PHYSICIANS AND SURGEONS, Cocktails and Dinner, Bismarck Hotel, Wednesday, June 11, 6:30 p. m.

CORNELL MEDICAL COLLEGE ALUMNI ASSOCIATION, Luncheon, almer House, Thursday, June 12, 12:15 p. m.

DUKE MEDICAL ALUMNI, Dinner, The Quadrangle Club, 1155 East 57th Street, Wednesday, June 11, 6:00 p. m.

FEDERATION OF CATHOLIC PHYSICIANS' GUILDS, Luncheon, Wednesday, June 11.

GEORGETOWN UNIVERSITY ALUMNI ASSOCIATION, Luncheon, Drake Hotel, Thursday, June 12, 12:30 p.m.

GEORGE WASHINGTON UNIVERSITY MEDICAL SOCIETY, Luncheon, Conrad Hilton Hotel, Thursday, June 12, 12:30 p. m.

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL ALUMNI ASSOCIATION, Cocktails and Dinner, Palmer House, Wednesday, June 11, 6:00 p. m.

HARVARD MEDICAL ALUMNI ASSOCIATION, Business Meeting and Annual Dinner, University Club, Wednesday, June 11, 4:30 p. m.

JEFFERSON MEDICAL COLLEGE ALUMNI ASSOCIATION, Cocktails and Dinner, Sheraton Hotel, Wednesday, June 11, 6:30 p. m.

JOHNS HOPKINS MEDICAL AND SURGICAL ASSOCIATION, Cocktails and Dinner, Conrad Hilton Hotel, Wednesday, June 11, 6:00 p. m.

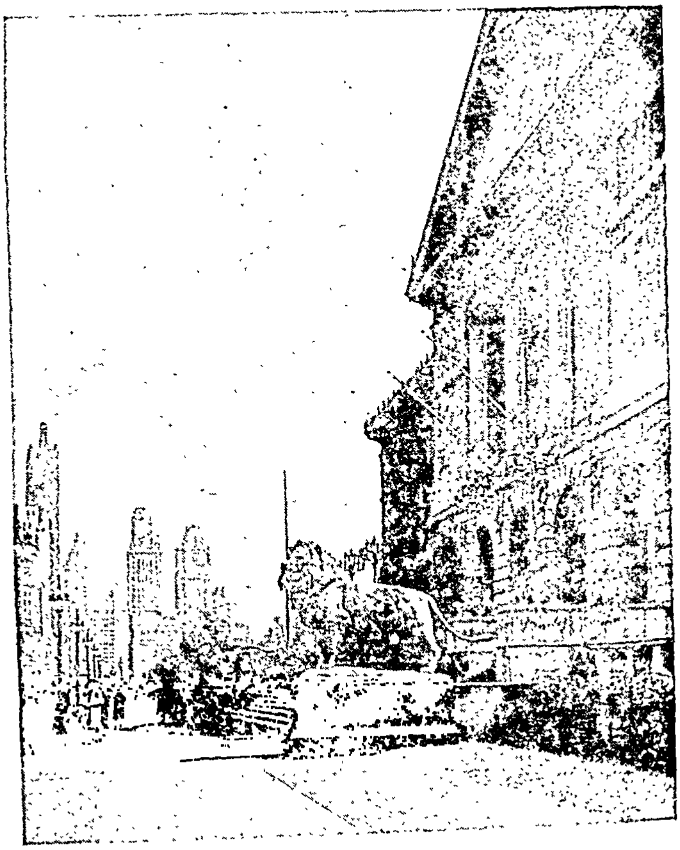
LOYOLA UNIVERSITY ALUMNI ASSOCIATION, Luncheon, Palmer House, Wednesday, June 11, 12:00 noon.

MARQUETTE MEDICAL ALUMNI ASSOCIATION, Luncheon, Hotel St. Claire, Thursday, June 12, 12:15 p. m.

UNIVERSITY OF NEBRASKA COLLEGE OF MEDICINE ALUMNI ASSOCIATION, Dinner, Palmer House, Wednesday, June 11, 6:00 p. m.

NORTHWESTERN UNIVERSITY (MEDICAL DIVISION) ALUMNI ASSOCIATION, Dinner, Hotel Knickerbocker, Saturday, June 7, 6:00 p. m.

PHI ALPHA SIGMA FRATERNITY, Luncheon, Palmer House, Wednesday, June 11, 12:30 p. m.



The Art Institute on the right

PHI BETA PI FRATERNITY, Luncheon, La Salle Hotel, Wednesday, June 11, 12:30 p. m.

Iota Chapter of Phi Beta Pi, Dinner, La Salle Hotel, Thursday, June 12, 6:30 p. m.

Alpha Omega Chapter of Phi Beta Pi, Dinner, Knickerbocker Hotel, Thursday, June 12, 6:30 p. m.

PHI CHI MEDICAL FRATERNITY, Luncheon, Drake Hotel, Wednesday, June 11, 12:15 p. m.

Rho Chapter of Phi Chi Medical Fraternity, Dinner, Conrad Hilton Hotel, Tuesday, June 10, 6:30 p. m.

PHI DELTA EPSILON FRATERNITY, Open House, Standard Club, 320 S. Plymouth Court, Wednesday, June 11, 9:00 p. m.

PHI LAMBDA KAPPA FRATERNITY, Luncheon, Sheraton Hotel, Wednesday, June 11, 12:00 noon.

PHI RHO SIGMA FRATERNITY, Luncheon, Chicago Yacht Club, Wednesday, June 11, 12:30 p. m.

RUSH MEDICAL COLLEGE ALUMNI, Dinner, Knickerbocker Hotel, Wednesday, June 11.

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE ALUMNI ASSOCIATION, Dinner, Conrad Hilton Hotel, Wednesday, June 11, 6:00 p. m.

TEMPLE UNIVERSITY MEDICAL ALUMNI, Luncheon, Bismarck Hotel, Wednesday, June 11, 12:30 p. m.

THETA KAPPA PSI FRATERNITY, Luncheon or Breakfast, Wednesday, June 11, place to be announced.

TUFTS MEDICAL ALUMNI ASSOCIATION, Dinner, Palmer House, Wednesday, June 11, 6:30 p. m.

UNIVERSITY OF LOUISVILLE ALUMNI, Dinner, Sheraton Hotel, Wednesday, June 11, 6:30 p. m.

UNIVERSITY OF PENNSYLVANIA MEDICAL ALUMNI SOCIETY, Cocktails and Dinner, Kungsholm Restaurant, Wednesday, June 11, 5:30 p. m.

ALUMNAE ASSOCIATION OF THE WOMEN'S MEDICAL COLLEGE, Dinner, Sheraton Hotel, Wednesday, June 11, 6:30 p. m.

### Physicians Art Exhibit

The American Physicians Art Association will exhibit more than 1,000 art pieces, in 20 different media, on Navy Pier during the Chicago Session. Over 250 trophies will be awarded at the annual art banquet to be held in the South Ball Room of the Conrad Hilton Hotel on Tuesday, June 10. Detailed information may be obtained from Dr. Francis H. Redewill, 1058 Phelan Building, San Francisco 2.

## WOMAN'S AUXILIARY

### Information

It is Chicago's great pleasure to extend a most cordial invitation to the members of the Woman's Auxiliary to the American Medical Association and to the wives and guests of physicians attending the Annual Session of the American Medical Association, to be present at the general sessions of the Woman's Auxiliary and to participate in all of its social events.

The Auxiliary headquarters will be at the Conrad Hilton Hotel, where all meetings and most of the social affairs will be held.

Please register promptly and obtain your badge, program, and tickets.

Members of the Hospitality Committee will be at the hotel to assist you in any way they can. It is our sincere hope that your visit will be most profitable and very pleasant.

### Registration Hours

Sunday, 12:00 noon to 4:00 p. m.
Monday, 9:00 a. m. to 4:00 p. m.
Tuesday, 9:00 a. m. to 4:00 p. m.
Wednesday, 9:00 a. m. to 4:00 p. m.
Thursday, 9:00 a. m. to 12:00 noon.

### Acknowledgments

The Woman's Auxiliary to the American Medical Association is pleased to acknowledge the courtesy and generosity of Wyeth Incorporated for providing the official program that will be distributed at the meeting.

For the many courtesies extended to the chairmen of the various committees in preparation for the convention, detailed acknowledgment will be published later.

The Convention chairmen wish to express their sincere thanks to the Illinois State Medical Society, the Chicago Medical Society, the Woman's Auxiliary to the Illinois State Medical Society, the Woman's Auxiliary to the Chicago Medical Society, the National Auxiliary President, the Executive Secretary, and the chairmen, co-chairmen, and convention committee members for their assistance in preparing for the 29th annual meeting.

MRS. HENRY L. SCHMITZ
MRS. WARREN W. YOUNG
General Chairmen
Committee on Convention Arrangements.

### Preconvention Schedule

SUNDAY, JUNE 8

12:00 noon to 4:00 p. m. Registration—Grand Ballroom Foyer (mezzanine floor)—Conrad Hilton Hotel.
The members of the Hospitality Committee will welcome members and guests of the Woman's Auxiliary.

### Committee Meetings

1:00 p. m. Nominating Committee—Dining Room No. 4 (third floor).
Mrs. Arthur A. Herold, Chairman.

2:30 p. m. Resolutions Committee—Dining Room No. 13 (third floor).
Mrs. Raymond W. Schulte, Chairman.

3:30 p. m. Revisions Committee—Dining Room No. 10 (third floor).
Mrs. Howard Root, Chairman.

8:00 p. m. Finance Committee—Dining Room No. 6 (third floor).
Mrs. Truman E. Caylor, Chairman.

MONDAY, JUNE 9

ROUND TABLE DISCUSSIONS

WEST BALLROOM (THIRD FLOOR)
Members Invited

9:00 a. m. to 10:00 a. m. Program. Mrs. Alfred F. Burnside, Chairman

10:00 a. m. to 11:00 a. m. Legislation. Mrs. Edgar E. Quayle, Chairman.

11:00 a. m. to 12:30 p. m. Public Relations. Mrs. Theodore E. Heinz, Chairman.

2:00 p. m. to 3:00 p. m. Today's Health. Mrs. J. K. Avent, Chairman.

Board of Directors—Lake Shore Club of Chicago

9:30 a. m. Meeting Parlor J (second floor).
Mrs. Harold F. Wahlquist, President, presiding.

12:30 p. m. Luncheon—Old Salem Room (third floor).
Mrs. Harold F. Wahlquist presiding.

Fashion Tea—Marshall Field's Narcissus Room

3:30 p. m. to 5:30 p. m. Honoring Mrs. Harold F. Wahlquist, President, and Mrs. Ralph Eusden, President-Elect. Invited guests: Members of the Board of Directors, State Presidents and Presidents-Elect, wives of American Medical Association Trustees and Officers, and Auxiliary officers and chairmen.

All wives of physicians are cordially invited.

Hostesses: The Woman's Auxiliaries to the Illinois State and Chicago Medical Societies.

Tickets $1.50 (tax and gratuity included).

## Convention Program

### TUESDAY, JUNE 10

9:00 a. m.

Formal opening of the Twenty-Ninth Annual Meeting of the Woman's Auxiliary to the American Medical Association, Grand Ballroom (mezzanine floor). Mrs. Harold F. Wahlquist, President, presiding.

Invocation. Dr. Ray Freeman Jenney, Bryn Mawr Community Church.

Pledge of Loyalty to the Woman's Auxiliary to the American Medical Association. Mrs. V. E. Holcombe, Past President and President of the Woman's Auxiliary to the Southern Medical Association.

Greetings. Kenneth H. Scatliff, M.D., President, Chicago Medical Society; Warren W. Furey, M.D., Chairman, Local Committee on Arrangements, American Medical Association.

Address of Welcome. Mrs. James M. McDonnough, Immediate Past President, Woman's Auxiliary to the Illinois State Medical Society.

Response. Mrs. C. L. Sheedy, President, Woman's Auxiliary to the Minnesota State Medical Association.

Presentation of Convention Chairmen. Mrs. Henry L. Schmitz, Mrs. Warren W. Young.

Introductions. Mrs. Harold F. Wahlquist, President.

Presentation of President-Elect. Mrs. Ralph Eusden.

Roll Call. Mrs. J. Emerson Noll, Constitutional Secretary.

Minutes of the Twenty-Eighth Annual Meeting. Mrs. J. Emerson Noll.

Convention Rules of Order. Mrs. William R. Molony, Jr.

Credentials and Registration. Mrs. Henry Christiansen.

Address of the President. Mrs. Harold F. Wahlquist.

#### REPORTS OF THE OFFICERS

President-Elect. Mrs. Ralph Eusden.

First Vice President. Mrs. Leo. J. Schaefer.

Second Vice President. Mrs. Mason G. Lawson.

Third Vice President. Mrs. Herbert W. Johnson.

Fourth Vice President. Mrs. Jay G. Linn.

Treasurer (including report of auditor). Mrs. George Turner.

Constitutional Secretary. Mrs. J. Emerson Noll.

Presentation of National Directors.

12:30 p. m.

Luncheon in honor of the Past Presidents of the Woman's Auxiliary to the American Medical Association, Boulevard Room (North Mezzanine).

Tickets $3.50 (tax and gratuity included).

Mrs. Harold F. Wahlquist, President, presiding.

Guest Speaker: Dr. Laurence M. Gould, President, Carleton College, Northfield, Minnesota.

#### AFTERNOON SESSION

2:00 p. m.

Report of the Board of Directors. Mrs. Harold F. Wahlquist.

Report of the Resolutions Committee (first reading). Mrs. Raymond M. Schulte, Chairman.

Election of the 1952-53 Nominating Committee.

State Reports. Western Region: Mrs. Herbert W. Johnson, Moderator, Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Washington, Utah, Wyoming.

Nurse Recruitment. Miss Emily Cardew, President, Illinois State League of Nursing Education.

#### REPORTS OF CHAIRMEN OF STANDING COMMITTEES

Finance. Mrs. Truman E. Caylor.

Legislation. Mrs. Edgar E. Quayle.

Program. Mrs. Alfred F. Burnside.

State Reports. Southern Region: Mrs. Mason G. Lawson, Moderator, Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas.

Report of Nominating Committee of 1952 (first reading). Mrs. Arthur A. Herold, Chairman.

Report of Election of 1952-53 Nominating Committee.

8:00 p. m.

Inaugural Meeting of the American Medical Association, Palmer House.

Members of the Woman's Auxiliary and guests are cordially invited.

### WEDNESDAY, JUNE 11

9:00 a. m.

General Session of the Woman's Auxiliary to the American Medical Association, Grand Ballroom (South Mezzanine). Mrs. Harold F. Wahlquist presiding.

Minutes. Mrs. J. Emerson Noll.

Convention Announcements. Mrs. Henry L. Schmitz, Mrs Warren W. Young.

Credentials and Registration. Mrs. Henry Christiansen.

In Memoriam. Mrs. Russell M. Kurten.

Address by the President of the American Medical Association. John W. Cline, M.D., San Francisco.

State Reports. North Central Region: Mrs. Leo J. Schaefei Moderator, Illinois, Indiana, Iowa, Kansas, Michigan, Min nesota, Missouri, Nebraska, North Dakota, Ohio, Sout Dakota, Wisconsin.

#### REPORTS OF CHAIRMEN OF STANDING COMMITTEES (CONTINUED)

Publications. Mrs. James P. Simonds.

Public Relations. Mrs. Theodore E. Heinz.

Revisions. Mrs. Howard Root.

Today's Health. Mrs. J. K. Avent.

Radio Broadcast. Mrs. Ralph Creighton and Mrs. L. Leonard.

#### REPORTS OF CHAIRMEN OF SPECIAL COMMITTEES

Bulletin Circulation. Mrs. David B. Allman.

Civil Defense. Mrs. Carl E. Sibilsky.

Handbook Revisions. Mrs. Charles L. Shafer.

Reference. Mrs. Rollo K. Packard.

Philanthropic. Mrs. Raymond T. Wayland.

12:30 p. m.

Annual Luncheon in honor of Mrs. Harold F. Wahlquis President, and Mrs. Ralph Eusden, President-Elect, Boul vard Room (North Mezzanine).

Tickets $3.50 (tax and gratuity included).

Mrs. Frank N. Haggard, Past President, presiding.

Guests of honor: Dr. John W. Cline, President, America Medical Association; Dr. Louis H. Bauer, President-Elec Dr. Dwight Murray, Chairman, Board of Trustees; D George F. Lull, Secretary and General Manager; Dr. Erne B. Howard, Assistant Secretary; Dr. J. J. Moore, Treasure Dr. F. F. Borzell, Speaker, House of Delegates; Dr. Jame Reuling, Vice Speaker; Dr. Austin Smith, Editor; D Joseph Lawrence, Director, A. M. A. Washington offic and the members of the Advisory Council to the America Medical Association.

### AFTERNOON SESSION

3:00 p. m.

State Reports. Eastern Region: Mrs. Jay G. Linn, Moderator, Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia.

Presentation of members of the Speaker's Bureau.

"Our Thirtieth Anniversary." Mrs. Jesse D. Hamer, Historian.

Report of Central Office. Miss Margaret Wolfe, Executive Secretary.

Unfinished Business.

New Business.

Revisions to the constitution and by-laws. Mrs. Howard Root, Chairman.

### THURSDAY, JUNE 12

9:00 a. m.

General Session of the Woman's Auxiliary to the American Medical Association, Grand Ballroom. Mrs Harold F. Wahlquist presiding.

Minutes. Mrs. J. Emerson Noll, Constitutional Secretary.

Convention Announcements. Mrs. Henry L. Schmitz, Mrs. Warren W. Young.

Credentials and Registration. Mrs. Henry Christiansen.

New Business (continued).

Resolutions (second reading). Mrs. Howard Root.

Convention Courtesy Resolutions. Mrs. Henry Garnjobst.

Report of the Nominating Committee. Mrs. Arthur A. Herold.

Election of Officers.

Installation of Officers. Mrs. Arthur A. Herold.

Presentation of Past President's Pin. Mrs. David W. Thomas.

Presentation of President's Pin. Mrs. David W. Thomas.

Presentation of Gavel.

Inaugural Address. Mrs. Ralph Eusden.

Minutes. Mrs. J. Emerson Noll.

Adjournment.

### AFTERNOON

2:00 p. m.

Meeting of the Board of Directors, Dining Room No. 1 (third floor).

Mrs. Ralph Eusden presiding.

7:00 p. m.

Annual Dinner of the Woman's Auxiliary to the American Medical Association for members, husbands, and guests, Crystal Ballroom, Blackstone Hotel. Tickets $5.75 (tax and gratuity included). Dress optional.

Mrs. Henry L. Schmitz presiding.

9:00 p. m.

Reception and Ball in honor of the President of the American Medical Association, Palmer House.

### FRIDAY, JUNE 13

9:30 a. m.

Conference of National Officers, Directors, National Chairmen of Standing Committees, and State Presidents and Presidents-Elect, South Ballroom (third floor).

Mrs. Ralph Eusden presiding.

## Local Committee on Convention Arrangements

### GENERAL CHAIRMEN

Mrs. Henry L. Schmitz
Mrs. Warren W. Young

### HONORARY COMMITTEE

Mrs. Walter Bornemeier
Mrs. Warren W. Furey
Mrs. C. Paul White
Mrs. Eugene T. McEnery
Mrs. Kenneth Scatliff
Mrs. Leo P. A. Sweeney

### CONVENTION COMMITTEE

Mrs. Edward M. Egan
Mrs. Harlan English
Mrs. Lewis Hare
Mrs. James P. Simonds
Mrs. Carl E. Sibilsky
Mrs. James McDonnough

### ANNUAL DINNER COMMITTEE

Mrs. H. Close Hesseltine, Chairman
Mrs. Leonard Houda, Co-Chairman

Mrs. Nathaniel Baskind
Mrs. M. M. Hipskind
Mrs. Hilger P. Jenkins
Mrs. Patrick H. McNulty
Mrs. George L. Pastnack
Mrs. James Patejdl
Mrs. Roman Siemens
Mrs. E. H. Warszewski
Mrs. R. E. Westland

### ANNUAL LUNCHEON COMMITTEE

Mrs. Cyril L. Hale, Chairman
Mrs. M. M. Corbett, Co-Chairman

Mrs. Martin J. DiCola
Mrs. Edward M. Dorr
Mrs. Gustave W. Lawson
Mrs. Lars E. Lundgoot
Mrs. Robert McCready
Mrs. Roy T. Sugars
Mrs. Thaddeus Chrzan

### CREDENTIALS AND REGISTRATION COMMITTEE

Mrs. Henry Christiansen, Chairman
Mrs. A. H. Hallman, Co-Chairman

Mrs. A. J. Bertash
Mrs. Garland Brown
Mrs. T. B. Carney
Mrs. Rossario Drago
Mrs. Jack Frost
Mrs. A. S. Geraci
Mrs. Fred Glenn
Mrs. I. J. K. Golden
Mrs. Leo Greszk
Mrs. Maurice Hoeltgen
Mrs. B. K. Lazarski
Mrs. Harold Miller
Mrs. Albert G. Nehf
Mrs. J. O. Peterson
Mrs. Oscar Rest
Mrs. Henry Schorr
Mrs. Fred Sheehan
Mrs. Charles Stotz
Mrs. Edward Studer
Mrs. S. J. Sullivan
Mrs. Leo O. Trech
Mrs. H. L. Wallin
Mrs. Charles Weigel
Mrs. Charles Wells

### FAVORS COMMITTEE

Mrs. David Slight, Chairman

### FINANCE COMMITTEE

Mrs. Victor E. Engelmann, Chairman
Mrs. John VanProhaska, Co-Chairman

### FLOWER COMMITTEE

Mrs. William Dyko, Chairman
Mrs. Bernard Peele, Co-Chairman

### HEADQUARTERS COMMITTEE

Mrs. John Glynn, Chairman
Mrs. George L. Pastnack, Co-Chairman

Mrs. M. M. Hipskind
Mrs. S. A. Lask
Mrs. Franklin J. Moore
Mrs. Daniel Pachman
Mrs. William Saphir
Mrs. Lorin Olson

### HOSPITALITY COMMITTEE

Mrs. Carl E. Sibilsky, Chairman
Mrs. A. F. Gareiss, Co-Chairman

Mrs. R. S. Barnsback
Mrs. Robert E. Dunlevy
Mrs. G. E. Edwards
Mrs. Fred Endres
Mrs. James L. Foley
Mrs. Frank Fraider
Mrs. Jack Frost
Mrs. Edwin Hamilton
Mrs. M. M. Hipskind
Mrs. S. M. Hubbard
Mrs. T. S. F. Johnson
Mrs. A. T. Kwedar
Mrs. Cecil Mexey Kell
Mrs. Frank Kraft
Mrs. Clyde Landis
Mrs. N. Earle Landy
Mrs. Charles Lesage
Mrs. J. C. Lundholm
Mrs. Frank Padour
Mrs. William Patejdl
Mrs. Walter Shriner
Mrs. W. W. Sittler
Mrs. Carroll W. Stuart
Mrs. William Somerville
Mrs. C. Paul White
Mrs. Martin C. Woloski

### INFORMATION COMMITTEE

Mrs. Samuel Plice, Chairman

Mrs. J. M. Berger
Mrs. Garland Brown
Mrs. Angelo S. Geraci
Mrs. Wade C. Harker
Mrs. Adolph Kraft
Mrs. John I. Perl
Mrs. Henry Schorr
Mrs. James Segraves
Mrs. Charles Stotz
Mrs. John H. Whaley

### JUNIOR AIDES

Mrs. G. Henry Mundt, Jr., Chairman

### MUSIC COMMITTEE

Mrs. R. E. Westland, Chairman

### PAST PRESIDENTS' LUNCHEON COMMITTEE

Mrs. Edward M. Egan, Chairman
Mrs. A. J. Sullivan, Co-Chairman

Mrs. Nicholas Chester
Mrs. Rosario Drago
Mrs. John J. Keehan
Mrs. Charles H. McKenna
Mrs. William Nainis
Mrs. Frank Padour
Mrs. H. L. Wallin
Mrs. W. J. Wanninger

### PRINTING AND SUPPLIES COMMITTEE

Mrs. Fred Sheehan, Chairman
Mrs. A. Javois, Co-Chairman

### PRESS AND PUBLICITY COMMITTEE

Mrs. G. T. Buttice, Chairman

Mrs. Jack Fischer
rs. Ronald Lindsay
Mrs. Patrick McNulty
Mrs. Wayne B. Slaughter
Mrs. Carlo S. Scuderi

### TEA COMMITTEE

Mrs. Lewis Hare, Chairman
Mrs. James J. McDonnough, Co-Chairman

Mrs. Harlan English
Mrs. Warren W. Young

### TICKET COMMITTEE

Mrs. Edward G. Warnick, Chairman
Mrs. Nicholas Dykstra, Co-Chairman

Mrs. Francis P. DeRosa
Mrs. H. P. Grossman
Mrs. Harry T. Haver
Mrs. Joseph Levenson
Mrs. B. J. Mix
Mrs. T. C. Mouzakeotis
Mrs. Adam A. Niec
Mrs. Ralph C. Sullivan
Mrs. S. J. Sullivan
Mrs. R. N. Swindle
Mrs. George C. Turner
Mrs. August Wendel
Mrs. Frank J. Wojniak
Mrs. John R. Wolff

## National Committees

### NOMINATING

Mrs. Arthur A. Herold, Chairman, Mrs. Joseph W. Kelso, Mrs. Paul C. Craig, Mrs. Ross P. Daniel, Mrs. George Cooperrider, Mrs. David B. Allman, Mrs. Hugh G. Henry.

### RESOLUTIONS

Mrs. Raymond M. Schulte, Chairman, Mrs. John Harter, Mrs. William Gambrell, Mrs. Harry Gauss, Mrs. Farrell Gallagher.

### READING

Mrs. James P. Simonds, Mrs. J. Emerson Noll, Mrs. Luther Kice, Miss Margaret Wolfe.

### ELECTION

Mrs. J. G. Martindale, Mrs. Clarence E. Fagan.

### TELLERS

Mrs. E. P. Higgins, Mrs. George H. Yeager, Mrs. E. J. Guilfoyle.

### TIMEKEEPERS

Mrs. Francis M. Fargher, Mrs. Thomas Reid, Mrs. John F. McCuskey.

## Advisory Council

Dr. George F. Lull, Chicago
Dr. Ernest B. Howard, Chicago
Dr. John W. Cline, San Francisco
Dr. Louis H. Bauer, Hempstead, N. Y.
Dr. Dwight H. Murray, Napa, Calif.
Dr. E. J. McCormick, Toledo, Ohio.
Dr. E. S. Hamilton, Kankakee, Ill.
Dr. Gunnar Gundersen, LaCrosse, Wis.
Dr. David B. Allman, Atlantic City, N. J.
Dr. F. J. L. Blasingame, Wharton, Texas
Dr. L. W. Larson, Bismarck, N. D.
Dr. T. P. Murdock, Meriden, Conn.
Dr. Walter B. Martin, Norfolk, Va.

## Officers

President, Mrs. Harold F. Wahlquist, Minneapolis.
President-Elect, Mrs. Ralph Eusden, Long Beach, Calif.
First Vice President, Mrs. Leo J. Schaefer, Salina, Kan.
Second Vice President, Mrs. Mason G. Lawson, Little Rock, Ark.
Third Vice President, Mrs. Herbert W. Johnson, Everett, Wash.
Fourth Vice President, Mrs. Jay G. Linn, Pittsburgh, Pa.
Treasurer, Mrs. George Turner, El Paso, Texas.
Constitutional Secretary, Mrs. J. Emerson Noll, Port Jervis, N. Y.
Parliamentarian, Mrs. Luther H. Kice, Long Island, N. Y.
Historian, Mrs. Jesse D. Hamer, Phoenix, Ariz.

## Directors

### ONE YEAR

Mrs. Arthur A. Herold, Shreveport, La.
Mrs. Robert Flanders, Manchester, N. H.
Mrs. Frank Gastineau, Indianapolis
Mrs. John S. Boulog, Denver

### TWO YEARS

Mrs. David W. Thomas, Lock Haven, Pa.
Mrs. William W. Potter, Knoxville, Tenn.
Mrs. E. Arthur Underwood, Vancouver, Wash.

## Chairmen of Standing and Special Committees

Finance, Mrs. Truman E. Caylor, Bluffton, Ind.
Legislation, Mrs. Edgar E. Quayle, Washington, D. C.
Organization, Mrs. Leo J. Schaefer, Salina, Kan.
Program, Mrs. Alfred F. Burnside, Columbia, S. C.
Publications, Mrs. James P. Simonds, Chicago.
Public Relations, Mrs. Theodore E. Heinz, Greeley, Colo.
Revisions, Mrs. Howard Root, Brookline, Mass.
Today's Health, Mrs. J. K. Avent, Grenada, Miss.
Bulletin Circulation, Mrs. David B. Allman, Atlantic City, N. J.
Civil Defense, Mrs. Carl E. Sibilsky, Peoria, Ill.
Reference, Mrs. Rollo K. Packard, Sherman Oaks, Calif.
Handbook Revisions, Mrs. Charles Shafer, Kingston, Pa.

## *Auxiliary Headquarters*

535 N. Dearborn Street, Chicago 10, Illinois
Margaret N. Wolfe, *Executive Secretary*

# GOLF TOURNAMENT

The American Medical Golfing Association will hold its 36th tournament on Monday, June 9, the opening day of the 1952 American Medical Association Annual Session. The well known St. Andrews Country Club at West Chicago, has been reserved for the medical golfers' tournament. Dinner will be served at 7 p. m. and will be followed by presentation of the many trophies and prizes.

Fellows may tee off between 7:30 a. m. and 2 p. m. Luncheon will be served at the club where the tournament is played. Entertainment will be held during and after the golfers' banquet at 7 p. m.

The Detroit Trophy

### Trophies and Prizes

Trophies will be awarded for the Association championship (36 holes), the Will Walter Trophy; to the runner-up champion, the Detroit Trophy; for the 18 hole championship, the Golden State Trophy; to the runner-up 18 hole champion, the Ben Thomas Trophy. The Section event will include sterling silver pitchers for such sections as Internal Medicine, Surgery, Obstetrics and Gynecology, Dermatology and Syphilology, and General Practice. The first flight (0-13) will contain trophies and prizes for both gross and net in 36 and 18 holes, including the St. Louis Trophy, the President's Trophy, the Atlantic City Trophy, and the Sperry Trophy. The second flight (14-18) and third flight (9-30) will contain prizes for both 36 and 18 holes; the maturity event (for Fellows 60 years and older), the Minneapolis Trophy, and Old Guard Championship, the Wendell Phillips Trophy. In addition to these, the Chicago Committee has secured ample prizes for the many golfers who will be in competition on June 9.

Frank H. Lahey, Boston, is President and D. H. Houston, Seattle, is Permanent Chairman of the Advisory Committee of the American Medical Golfing Association.

### Chicago Committee on Arrangements

The Chicago Committee on Arrangements is under the chairmanship of Robert J. Hawkins, 4458 West Madison St., Chicago. He is being assisted by Frank H. Fowler, Harry E. Mock, C. E. Shannon, and H. Bascomb Thomas.

### Applications for Membership

The Chicago Tournament will give an opportunity to A. M. G. A. Fellows, and to those who join the Association in 1952, to enjoy a wonderful day of golf, to win a nice prize and to join in the famous good fellowship of the American Medical Golfing Association.

All male members of the American Medical Association are cordially invited to become Fellows of the American Medical Golfing Asscciation and execute the application blank at the end of the notice of the Golf Tournament and mail it to Secretary Bob Elwell, 1420 Monroe Street, Toledo 2, Ohio. Participants in the tournament are required to present their home club handicap, signed by the club secretary, or to accept a handicap set by the Handicap Committee. No handicap over 30 is allowed. All 18 hole trophies and prizes are awarded on the basis of scores for the first 18 holes played. A Fellow absent from the annual banquet following the tournament forfeits his rights to a trophy or prize.

# PROGRAM OF THE SCIENTIFIC ASSEMBLY

## GENERAL SCIENTIFIC MEETINGS

AUDITORIUM, NAVY PIER

### Monday, June 9—9 a. m.

MICHAEL E. DEBAKEY, Member of Council on Scientific Assembly, Presiding

9:00 a. m. **Recent Trends in Gallbladder Surgery.**

WARREN H. COLE, Department of Surgery, University of Illinois College of Medicine, Chicago.

9:45 a. m. **Benign Lesions of the Breast Which May be Mistaken for Carcinoma.**

C. D. HAAGENSEN, Department of Surgery, Columbia University College of Physicians and Surgeons, New York.

10:30 a. m. **Surgery of the Pancreas.**

RICHARD B. CATTELL, Division of General Surgery of Lahey Clinic, Boston.

11:15 a. m. **Carcinoma of the Stomach.**

ALTON OCHSNER, Department of Surgery of Ochsner Clinic, New Orleans.

### Monday, June 9—2 p. m.

STANLEY P. REIMANN, Member of Council on Scientific Assembly, Presiding

2:00 p. m. **Development of Therapy in Tropical Medicine.**

L. T. COGGESHALL, Dean, Division of the Biological Sciences, University of Chicago, Chicago.

2:45 p. m. **Intermediary Metabolism.**

SIDNEY WEINHOUSE, Lankenau Hospital Research Institute and Institute for Cancer Research, Philadelphia.

3:30 p. m. **The Nature of the Peptic Ulcer Problem.**

C. T. STONE, Department of Medicine, University of Texas School of Medicine, Galveston, Texas.

4:15 p. m. **The Development of the United States Public Health Service's Clinical Center for Medical Research.**

NORMAN TOPPING, Associate Director, National Institutes of Health, Bethesda, Md.

### Friday, June 13—9 a. m.

ALPHONSE MCMAHON, Member of Council on Scientific Assembly, Presiding

9:00 a. m. **The Problem of the Painful Shoulder.**

MARK B. COVENTRY, Section of Orthopedic Surgery of Mayo Clinic, Rochester, Minn.

9:45 a. m. **Feeding the Sick and Appetite Training.**

ROBERT W. KEETON, Professor of Medicine Emeritus, University of Illinois College of Medicine, Chicago.

10:30 a. m. **Clinical Disorders Associated with Changes in the White Blood Cells.**

JOHN S. LAWRENCE, Professor of Medicine, University of California at Los Angeles Medical Center, Los Angeles.

11:15 a. m. **Heart Diseases Amenable to Surgical Treatment: Their Present Status.**

THOMAS J. DRY, Clinical Section of Mayo Clinic, Rochester, Minn.

# THE PROGRAMS OF THE SECTIONS

### Outline of the Scientific Proceedings

The following papers are announced to be read before the various sections. The order here is not necessarily the order that will be followed in the Official Program. The Official Program will be similar to the programs issued in previous years and will contain the final program of each section with abstracts of the papers, as well as lists of committees, program of the Inaugural Meeting, list of entertainments and other information. To prevent misunderstandings and protect the interest of advertisers, it is here announced that this Official Program will contain no advertisements. It is copyrighted by the American Medical Association and will not be distributed before the session. A copy will be given to each physician on registration.

## SECTION ON ANESTHESIOLOGY

MEETS IN ROOM 7, NAVY PIER

### OFFICERS OF SECTION

Chairman—Stevens J. Martin, Hartford, Conn.

Vice Chairman—Mary M. Lyons, Ravinia, Ill.

Secretary—John S. Lundy, Rochester, Minn.

Executive Committee—Frederic W. Clement, Toledo, Ohio; H. Boyd Stewart, Tulsa, Okla.; Stevens J. Martin, Hartford, Conn.

### Tuesday, June 10—2 p. m.

**Evaluation of Trichlorethylene as an Anesthetic and Analgesic Agent.**

William K. Nowill and C. Ronald Stephen, Durham, N. C., and Paul W. Searles, Buffalo.

Discussion to be opened by Charles M. Barbour, Hartford, Conn., and Scott M. Smith, Salt Lake City.

**Studies on Resuscitation: An Experimental Evaluation of the Bloxsom Air-Lox.**

Virginia Apgar, New York, and Joseph Kreiselman, Washington, D. C.

Discussion to be opened by Ivan B. Taylor, Detroit, and Stuart C. Cullen, Iowa City.

**Postoperative Pain Control.** Alfred H. Iason, Brooklyn.

Discussion to be opened by Charles D. Anderson, Chicago, and Paul H. Lorhan, Kansas City, Kan.

**Continuous Procaine Blockade of the Paravertebral Sympathetic Ganglia: Observations on 100 Patients.**

Albert M. Betcher, George Bean, and Daniel Casten, New York.

Discussion to be opened by John Adriani, New Orleans, and Lawrence D. Ruttle, Joliet, Ill.

**Sciatic and Femoral Nerve Block.**

Daniel C. Moore, Seattle, Wash.

Discussion to be opened by Max S. Sadove, Chicago, and A. B. Stearns, Detroit.

**The Role of the Anesthesiologist in the Management of Intractable Pain.** John J. Bonica, Tacoma, Wash.

Discussion to be opened by Harold F. Bishop, Valhalla, N. Y., and F. A. D. Alexander, McKinney, Texas.

### Wednesday, June 11—2 p. m.

BUSINESS MEETING
ELECTION OF OFFICERS
REPORT OF DELEGATE

**Cardiac Asystole.**

Mary Lou Buckley, Kenneth K. Keown, and Henry S. Ruth, Philadelphia.

Discussion to be opened by Donald E. Hale, Cleveland, and V. K. Stoelting, Indianapolis.

**The Treatment of Hiccups.**

Albert F. Gigot, Boston, and Paul D. Flynn, Waltham, Mass.

Discussion to be opened by W. Allen Conroy, Chicago, and Joe DePree, Grand Rapids, Mich.

**Chairman's Address: Anesthesiology: A Challenge.**

Stevens J. Martin, Hartford, Conn.

**Pentothal-Ether Anesthesia.**

John A. Paulson, Rochester, Minn

Discussion to be opened by Mary Karp, Chicago, an Charles F. Jones, Toledo, Ohio.

*Symposium on Relaxants*

**The Use of Synthetic Muscle Relaxants in Anesthesiology.**

Francis F. Foldes, Theodore S. Machaj, and Robe D. Hunt, Pittsburgh; Phil C. Carberry, Irvingto N. J., and Pearl G. McNall, Pittsburgh.

**Experience with the Use of Curare Since 1943 in a Lar Western Community.**

B. M. Anderson, Oakland, Calif.; E. E. Brinckerho Berkeley, Calif.; and E. H. Case, F. E. Davis, a F. M. Thornburg, Oakland, Calif.

Discussion to be opened by Henry K. Beecher, Bost and Lloyd E. Larrick, Cincinnati.

### Thursday, June 12—9 a. m.

JOINT MEETING WITH SECTION ON
DISEASES OF THE CHEST

**Chest Conditions of Mutual Concern to Chest Specialists a Anesthesiologists.** James J. Waring, Denv

Discussion to be opened by Richard H. Overho Brookline, Mass., and Lloyd H. Mousel, Seat Wash.

**The Prevention of Postoperative Pulmonary Complications a Program Dependent Entirely on the Anesthesiolog**

Barnett A. Greene, Brookl

Discussion to be opened by Paul H. Holinger Willis J. Potts, Chicago.

**The Relationship of Pain Control to Pulmonary Surgery.**

J. Maxwell Chamberlain and Charles F. Dani New York.

Discussion to be opened by Karl H. Pfuetze, G Ellyn, Ill., and Ralph T. Knight, Minneapolis.

**The Role of Diagnosis and Anesthesia in Surgery of the He**

C. Rollins Hanlon, St. Lo

Discussion to be opened by Thomas J. Dry, Roches Minn., and William O. McQuiston, Peoria, Ill.

**Radiologic Aspects of Intrathoracic Disease.**

Fred J. Hodges and Robert S. MacIntyre, Ann Ar Mich.

Discussion to be opened by Herbert C. Maier, York, and R. J. Whitacre, East Cleveland, Ohi

**Peroral Endoscopy: The Preparation of Patients.**
Arthur M. Olsen and John W. Pender, Rochester, Minn.
Discussion to be opened by John D. Steele, Milwaukee, Wis.

## SECTION ON DERMATOLOGY AND SYPHILOLOGY

MEETS IN ROOM 8, NAVY PIER

### OFFICERS OF SECTION

Chairman—Francis W. Lynch, St. Paul.
Vice Chairman—E. Myles Standish, Hartford, Conn.
Secretary—John H. Lamb, Oklahoma City.
Executive Committee—Clinton W. Lane, St. Louis; Dudley C. Smith *; Francis W. Lynch, St. Paul.

### Tuesday, June 10—9 a. m.

**Chairman's Address: Pruritis Vulvae.**
Francis W. Lynch, St. Paul.

**Enzyme Débridement of Indolent Infected Cutaneous Ulcers.**
John F. Madden and Harold G. Ravits, St. Paul.
Discussion to be opened by Davitt A. Felder, Minneapolis.

**The Association of Dermatomyositis and Malignancy.**
Arthur C. Curtis and E. Richard Harrell, Ann Arbor, Mich.
Discussion to be opened by Ashton L. Welsh, Cincinnati.

**Physiology and Pathogenesis of Microsporon Audouini.**
Harry M. Robinson Jr., Frank H. Figge, and Eugene S. Bereston, Baltimore.
Discussion to be opened by Sture A. M. Johnson, Madison, Wis.

**Further Amplification of the Concept of Dermatophytid.**
Otis Field Jillson and Robert Hoekelman, Hanover, N. H.
Discussion to be opened by James H. Mitchell, Chicago.

**An Appraisal of the Value of the Local Use of Antihistamines.**
Francis A. Ellis and William R. Bundick, Baltimore.
Discussion to be opened by Carl T. Nelson, New York.

### Wednesday, June 11—9 a. m.

ELECTION OF OFFICERS

**Benign and Malignant Dermal Neoplasms: Clinical and Histologic Distinction.**
Hamilton Montgomery, Rochester, Minn.
Discussion to be opened by Marcus R. Caro, Chicago.

**An Epidemiological and Clinical Study of Grain Itch.**
Boynton H. Booth and Roland W. Jones, Indianapolis.
Discussion to be opened by Leon Goldman, Cincinnati.

**Tinea Capitis (M. Audouini) Managed with Asterol Dihydrochloride.** William J. Morgison, Salt Lake City.
Discussion to be opened by Edmond K. Edelson, Newark, N. J.

**Keloids Treated with Hyaluronidase.**
Theodore Cornbleet, Chicago.
Discussion to be opened by Allen W. Pepple, Richmond, Va.

**Treatment of Pemphigus with Oral Cortisone.**
A. H. Conrad Jr., Jerome Greenhouse, and Richard S. Weiss, St. Louis.
Discussion to be opened by John R. Haserick, Cleveland.

**Therapeutic Experiments in Alopecia Areata.**
Calvin J. Dillaha and Stephen Rothman, Chicago.
Discussion to be opened by Maurice J. Reuter, Milwaukee.

### Thursday, June 12—9 a. m.

**Premalignant Fibroepitheliomatous Tumors of the Skin.**
Herman Pinkus, Detroit.
Discussion to be opened by Zola K. Cooper, St. Louis.

**An Analysis of Patterns in Contact Dermatitis of the Hands.**
George L. Waldbott, Detroit.
Discussion to be opened by Elmer M. Rusten, Minneapolis.

**Injection Treatment of Hemangioma.**
John C. Slaughter Jr., Evansville, Ind.
Discussion to be opened by D. Truett Gandy, Houston, Texas.

**The Use of Podophyllin in Dermatology.**
Lawrence M. Nelson, Santa Barbara, Calif.
Discussion to be opened by Leslie M. Smith, El Paso, Texas.

**Riehl's Melanosis.** A. J. Reiches, St. Louis.
Discussion to be opened by Thomas B. Fitzpatrick, Ann Arbor, Mich.

**Unusual Sunlight Eruptions.**
Robert J. Morgan, Paul O. Shackelford, and John H. Lamb, Oklahoma City.
Discussion to be opened by Arthur R. Woodburne, Denver.

## SECTION ON DISEASES OF THE CHEST

MEETS IN ROOM 9, NAVY PIER

### OFFICERS OF SECTION

Chairman—J. Winthrop Peabody, Washington, D. C.
Vice Chairman—Joseph C. Placak, Cleveland.
Secretary—Jay A. Myers, Minneapolis.
Executive Committee—Walter E. Vest, Huntington, W. Va.; Alvis E. Greer, Houston, Texas; J. Winthrop Peabody, Washington, D. C.

### Tuesday, June 10—9 a. m.

**Chairman's Address: Present Trends in Diseases of the Chest.**
J. Winthrop Peabody, Washington, D. C.

**The Treatment of Bronchial Asthma.**
Leon Unger and Albert H. Unger, Chicago.

**Pulmonary Complications of Cardiospasm.**
H. A. Andersen and C. B. Holman, Rochester, Minn.

**Present Status of Drugs in Treatment of Tuberculosis.**
Carl W. Tempel, Denver.

**Treatment of Human Tuberculosis with Hydrazide of Isonicotinic Acid.**
Irving J. Selikoff, Paterson, N. J., and Edward H. Robitzek, Staten Island, N. Y.

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* Deceased

**Water Soluble Contrast Media for Bronchoscopy.**

M. E. FLIPSE, Rochester, Minn., and G. A. HEDBERG and VICTOR R. KRUEGER, Nopeming, Minn.

**Juxtacarina Biopsy in Evaluation of Operability of Bronchial Carcinoma.**

C. B. RABIN and RUDOLPH KRAMER, New York.

**The Wolff-Parkinson-White Syndrome.**

ELIOT CORDAY, Beverly Hills, Calif.; REXFORD KENNAMER, JOHN A. OSBORNE, JOSHUA FIELDS, and L. ALLEN SMITH, Los Angeles, and MYRON PRINZMETAL, Beverly Hills, Calif.

### Wednesday, June 11—9 a. m.

ELECTION OF OFFICERS

**Tuberculosis Control in Lincoln County, Minnesota.**

S. A. SLATER, Worthington, Minn., and A. L. VADHEIM, Tyler, Minn.

**Hidden or Unsuspected Bronchiectasis in the Asthmatic.**

RICHARD OVERHOLT, J. H. WALKER, and F. M. WOODS, Brookline, Mass.

**Polycythemia and Heart Failure in Chronic Lung Disease.**

HANS H. HECHT, Salt Lake City.

**The Diagnosis and Treatment of Patients Suffering from Simple Bronchial Erosion with Pulmonary Hemorrhage.**

PORTER P. VINSON, Richmond, Va.

**Recent Trends in the Treatment of Pulmonary Tuberculosis.**

N. D. D'ESOPO, Sunmount, N. Y.

**The Surgical Treatment of Aortic Stenosis.**

C. P. BAILEY, H. P. REDONDO, and H. B. LARZELERE, Philadelphia.

**Clinical and Physiological Aspects of Mechanically Induced Cough.** ALVAN L. BARACH, New York.

**[illegible]ent Positive-Pressure Breathing in the Treatment of Chronic Pulmonary Diseases.**

REGINALD H. SMART, Los Angeles; C. K. DAVENPORT, Fontana, Calif., and G. W. PEARSON, Los Angeles.

### Thursday, June 12—9 a. m.

JOINT MEETING WITH SECTION ON ANESTHESIOLOGY IN ROOM 7, NAVY PIER

**Chest Conditions of Mutual Concern to Chest Specialists and Anesthesiologists.** JAMES J. WARING, Denver.

Discussion to be opened by RICHARD H. OVERHOLT, Brookline, Mass., and LLOYD H. MOUSEL, Seattle, Wash.

**The Prevention of Postoperative Pulmonary Complications by a Program Dependent Entirely on the Anesthesiologist.**

BARNETT A. GREENE, Brooklyn.

Discussion to be opened by PAUL H. HOLINGER and WILLIS J. POTTS, Chicago.

**The Relationship of Pain Control to Pulmonary Surgery.**

J. MAXWELL CHAMBERLAIN and CHARLES F. DANIELS, New York.

Discussion to be opened by KARL H. PFUETZE, Glen Ellyn, Ill., and RALPH T. KNIGHT, Minneapolis.

**The Role of Diagnosis and Anesthesia in Surgery of the Heart.**

C. ROLLINS HANLON, St. Louis.

Discussion to be opened by THOMAS J. DRY, Rochester, Minn., and WILLIAM O. MCQUISTON, Peoria, Ill.

**Radiologic Aspects of Intrathoracic Disease.**

FRED J. HODGES and ROBERT S. MACINTYRE, Ann Arbor, Mich.

Discussion to be opened by HERBERT C. MAIER, New York, and R. J. WHITACRE, East Cleveland, Ohio.

**Peroral Endoscopy: The Preparation of Patients.**

ARTHUR M. OLSEN and JOHN W. PENDER, Rochester, Minn.

Discussion to be opened by JOHN D. STEELE, Milwaukee, Wis.

## SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

MEETS IN ROOM 11, NAVY PIER

### OFFICERS OF SECTION

Chairman—CARL V. MOORE, St. Louis.
Vice Chairman—M. H. SEEVERS, Ann Arbor, Mich.
Secretary—HUGH R. BUTT, Rochester, Minn.
Executive Committee—MCKEEN CATTELL, New York; JAME A. GREENE, Houston, Texas; CARL V. MOORE, St. Loui

### Tuesday, June 10—9 a. m.

*Symposium on Use of Chemotherapeutic and Antibiotic Agents*

**In Infections of the Central Nervous System.**

HATTIE E. ALEXANDER, New Yor

Discussion to be opened by HARRY F. DOWLING, Chicag

**In Infections of the Skeletal System.**

WILLIAM A. ALTEMEIER, Cincinnat

Discussion to be opened by GUY A. CALDWELL, Ne Orleans, and CHAMP LYONS, Birmingham, Ala.

**In Infections of the Blood Stream and Heart.**

WALLACE E. HERRELL, Rochester, Min

Discussion to be opened by THOMAS H. HUNTER, Louis, and PERRIN H. LONG, Brooklyn.

**In Infections of the Respiratory System.**

MONROE J. ROMANSKY, Washington, D.

Discussion to be opened by A. M. OLSEN, Rocheste Minn.

**In Infections of the Genito-Urinary Tract.**

REED M. NESBIT, WILLIAM C. BAUM, and AUSTIN I. DO SON JR., Ann Arbor, Mich.

Discussion to be opened by GRAYSON CARROLL, St. Lou and RUSSELL D. HERROLD, Chicago.

**In Diseases of the Gastro-Intestinal Tract.**

JOHN D. HUGHES, Memphis, Ten

Discussion to be opened by SIDNEY ROSS and EDWIN PULASKI, Washington, D. C.

### Wednesday, June 11—9 a. m.

ELECTION OF OFFICERS

**Chairman's Address: Problems Created by a National Blood Program: The Excessive Use of Blood Transfusions and the Effect of Frequent Donations on the Iron Requirements of Donors.** Carl V. Moore, St. Louis.

**Minot Lecture: Some Aspects of the Leukemia Problem.** Cyrus C. Sturgis, Ann Arbor, Mich.

**Platelet Transfusion and the Pathogenesis of Idiopathic Thrombocytopenic Purpura.**

Charles C. Sprague and William J. Harrington, St. Louis; R. D. Lange, Kirkwood, Mo., and J. P. Shapleigh, St. Louis.

Discussion to be opened by Frank H. Gardner, Boston.

**The Differentiation Between Acquired and Congenital Forms of Hemolytic Anemia.** Lawrence E. Young, Rochester, N. Y.

Discussion to be opened by Karl Singer, Chicago, and J. Minott Stickney, Rochester, Minn.

**Arteriolization of the Coronary Sinus.**

Charles P. Bailey, George D. Geckeler, Raymond C. Truex, and William Likoff, Philadelphia; Nicholas A. Antonius, Newark, N. J.; Armand W. Angulo and Hector P. Redondo, Philadelphia.

Discussion to be opened by Claude S. Beck and Harold Feil, Cleveland.

**Effect of Ingested Alumina Preparations on the Plasma Cholesterol Level in Man.**

Simon Rodbard and Gerald R. Graham, Chicago.

Discussion to be opened by Maurice S. Goldstein and Alex Kaplan, Chicago.

### Thursday, June 12—9 a. m.

JOINT MEETING WITH SECTION ON INTERNAL MEDICINE

*Symposium on Recent Advances in Diabetes Mellitus*

**Pathogenesis.** DeWitt Stetten Jr., New York.

Discussion to be opened by Rachmiel Levine and Konrad Bloch, Chicago.

**Ocular Changes** Jonas S. Friedenwald, Baltimore.

Discussion to be opened by Paul Kimmelstiel, Charlotte, N. C.; Francis H. Adler, Philadelphia, and George W. Dana, Baltimore.

**Degenerative Vascular Complications.** Alexander Marble, Boston.

Discussion to be opened by Lester J. Palmer, Seattle, and James W. Sherrill, La Jolla, Calif.

**Modern Treatment.** Henry T. Ricketts, Chicago.

Discussion to be opened by Carlos P. Lamar, Miami, Fla., and Blair Holcomb, Portland, Ore.

**Diabetic Coma.** Randall G. Sprague, Rochester, Minn.

Discussion to be opened by Henry B. Mulholland, Charlottesville, Va., and James A. Greene, Houston, Texas.

**The Improved Outlook of the Diabetic Patient.** Edwin L. Rippy, Dallas, Texas.

Discussion to be opened by Russell M. Wilder, Bethesda, Md., and Leon S. Smelo, Birmingham, Ala.

## SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

MEETS IN ROOM 4, NAVY PIER

### OFFICERS OF SECTION

Chairman—Grant H. Laing, Chicago.
Vice Chairman—Louis E. Moon, Omaha.
Secretary—Donovan C. Browne, New Orleans.
Executive Committee—Russell S. Boles, Philadelphia; Frank G. Runyeon, Reading, Pa.; Grant H. Laing, Chicago.

### Tuesday, June 10—9 a. m.

**Benign Gastric Mucosal Prolapse into Duodenum.**

Jacob Lichstein and Leonard M. Asher, Los Angeles.

Discussion to be opened by Walter L. Palmer, Chicago, and Moses Paulson, Baltimore.

**Total Gastrectomy Problem: Cecal Transposition, Physiologic Follow-Up.** Frank B. McGlone, Denver.

Discussion to be opened by Harvey B. Stone, Baltimore, and Claude Marshall Lee Jr., Cincinnati.

**Adenomatous Polyps of the Colon and Rectum.** Alejandro F. Castro, Washington, D. C.

**Sigmoidoscopy: An Analysis of 3,500 Consecutive Cases.**

Paul L. Shallenberger and Peter Fisher, Sayre, Pa.

Discussion to be opened by George E. Binkley, New York; Patrick H. Hanley, New Orleans, and Foster L. McMillan, Chicago.

**Five Year Follow-Up on Patients with Duodenal Ulcer Treated by Vagotomy and Gastroenterostomy.**

H. Marvin Pollard and Robert J. Bolt, Ann Arbor, Mich.

Discussion to be opened by Frank H. Lahey, Boston, and Lester R. Dragstedt, Chicago.

**Results of Azopyrine Treatment in Chronic Ulcerative Colitis.** Lester M. Morrison, Los Angeles.

Discussion to be opened by J. Arnold Bargen, Rochester, Minn., and John M. McMahon, Bessemer, Ala.

### Wednesday, June 11—9 a. m.

ELECTION OF OFFICERS

**Sigmoido-Rectal Intussusception.** Emil Granet, New York.

Discussion to be opened by C. L. Martin and Richard K. Gilchrist, Chicago.

**Chairman's Address: Trends in Gastro-Enterology and Proctology.** Grant H. Laing, Chicago.

**An Evaluation of Ileoproctostomy to Avoid Ileostomy in Various Colon Lesions.** R. Russell Best, Omaha.

Discussion to be opened by Mark M. Ravitch, Baltimore, and Guy V. Pontius, Chicago.

**Giant Benign Gastric Ulcers.** A. I. Friedman, Hackensack, N. J.

**Fate of Patients with Surgically Untreated Small Gastric Ulcers.**

James C. Cain, George L. Jordan, Mandred W. Comfort, and Howard K. Gray, Rochester, Minn.

Discussion to be opened by Russell S. Boles, Philadelphia, and Joseph B. Kirsner, Chicago.

### Thursday, June 12—9 a. m.

JOINT MEETING WITH SECTION ON PATHOLOGY AND PHYSIOLOGY

**The Thymus and Thymic Tumors in Myasthenia Gravis.**
ELEANOR M. HUMPHREYS, Chicago.
Discussion to be opened by J. ALFRED RIDER and EDWIN F. HIRSCH, Chicago.

**The Treatment of Nutritional Anemia.**
BYRON E. HALL, Rochester, Minn.
Discussion to be opened by GRANT H. LAING and LEON JACOBSON, Chicago.

**The Meaning of Bone Marrow Studies: A Clinical Pathological Evaluation.** LOUIS R. LIMARZI, Chicago.
Discussion to be opened by S. A. LEVINSON and MATTHEW H. BLOCK, Chicago.

**Acute Esophageal and Gastric Hemorrhage.**
BURRILL B. CROHN and HENRY D. JANOWITZ, New York.
Discussion to be opened by LEON SCHIFF, Cincinnati, and J. D. STEWART, Buffalo.

**The Etiology of Pain in the Ano Rectal Region.**
JOHN R. HILL, Rochester, Minn.
Discussion to be opened by WILLARD L. COOPER, Lexington, Ky., and LYMAN R. PEARSON, Indianapolis.

## SECTION ON GENERAL PRACTICE

MEETS IN ROOM 2, NAVY PIER

### OFFICERS OF SECTION

Chairman—THOMAS E. ROBINSON, Salt Lake City.
Vice Chairman—RICHARD A. MILLS, Fort Lauderdale, Fla.
Secretary—EUGENE I. BAUMGARTNER, Oakland, Md.
Executive Committee—MILTON B. CASEBOLT, Kansas City, Mo.; LESTER D. BIBLER, Indianapolis; THOMAS E. ROBINSON, Salt Lake City.

### Tuesday, June 10—9 a. m.

**Chairman's Address.** THOMAS E. ROBINSON, Salt Lake City.

*Symposium and Panel Discussion on Atherosclerosis: Etiology, Pathogenesis, Treatment, and Prevention*

LOUIS N. KATZ, Chicago, Moderator

Participants:

S. L. WILENS, New York.
FORREST M. KENDALL, Nappanee, Ind.
IRVINE H. PAGE, Cleveland.
JEREMIAH STAMLER, Chicago.
FREDRICK J. STARE, Boston.
CAMPBELL MOSES, Pittsburgh.
THOMAS M. DURANT, Philadelphia.
GEORGE E. BURCH, New Orleans.
IRVING S. WRIGHT, New York.
NELSON W. BARKER, Rochester, Minn.
GORDON GOULD, Chicago.
JOHN W. GOFMAN, San Francisco.

### Wednesday, June 11—9 a. m.

ELECTION OF OFFICERS

**The Management of Sexual Conflicts in General Practice.**
WILFRED C. HULSE, New York.
Discussion to be opened by JOSEPH LINDNER, Cincinnati, and THOMAS E. RARDIN, Columbus, Ohio.

**Management of Osteoarthritis in the Aged.**
JOHN G. KUHNS, Boston.
Discussion to be opened by EDWARD F. ROSENBERG and GRANVILLE A. BENNETT, Chicago.

**ACTH and Cortisone in the Treatment of Ocular Diseases.**
E. H. STEFFENSEN, Detroit.
Discussion to be opened by GEORGE J. HAMWI, Columbus, Ohio, and DAN M. GORDON, New York.

**Intractable Duodenal Ulcer.**
SIDNEY A. PORTIS and CHARLES H. LAWRENCE, Chicago.
Discussion to be opened by WALTMAN WALTERS, Rochester, Minn.

**Newer Concepts in the Use of ACTH and Cortisone in Clinical Practice.** LAURENCE W. KINSELL, Oakland, Calif.

**Practical Aspects of Inguinal Hernia.** PHILIP THOREK, Chicago.
Discussion to be opened by KARL A. MEYER, Chicago, and R. B. ROBINS, Camden, Ark.

**"Two-Step" Exercise Electrocardiogram: A Follow-Up Investigation in Patients with Chest Pain and Normal Resting Electrocardiogram.**
ARTHUR M. MASTER, LEON PORDY, and KENNETH CHESKY, New York.
Discussion to be opened by HARRY L. JAFFE, New York.

### Thursday, June 12—9 a. m.

JOINT MEETING WITH SECTION ON PHYSICAL MEDICINE AND REHABILITATION

*Symposium on Hemiplegia*

**Hemiplegia: Pathology and Differential Diagnosis.**
LOUIS J. KARNOSH, Cleveland.
Discussion to be opened by MORTON MARKS, New York.

**Hemiplegia: Treatment in the Acute Phase.**
EARL C. ELKINS and JOSEPH G. RUSHTON, Rochester, Minn.
Discussion to be opened by SEDGWICK MEAD, St. Louis.

**Hemiplegia: Rehabilitation Procedures.**
LEONARD JEROME YAMSHON, Los Angeles.
Discussion to be opened by HAROLD DINKEN, Denver.

**Early Management of the Paraplegic.**
DONALD A. COVALT, IRVING S. COOPER, and THOMAS HOEN, New York.
Discussion to be opened by LOUIS B. NEWMAN, Hines, Ill.

**Poliomyelitis: Present Concepts of Physical Medicine and Rehabilitation.** DUANE A. SCHRAM, Gonzales, Texas.
Discussion to be opened by ROBERT L. BENNETT, Warm Springs, Ga.

## SECTION ON INTERNAL MEDICINE

MEETS IN ROOM 11, NAVY PIER

### OFFICERS OF SECTION

Chairman—CARTER SMITH, Atlanta, Ga.
Vice Chairman—TRUMAN G. SCHNABEL, Philadelphia.
Secretary—HERRMAN L. BLUMGART, Boston.
Executive Committee—ARTHUR L. BLOOMFIELD, San Francisco WALTER L. PALMER, Chicago; CARTER SMITH, Atlanta, Ga

### Tuesday, June 10—2 p. m.

**Present Status of ACTH and Cortisone.**
WILLARD O. THOMPSON, Chicago

**The Place of Cortisone in the Treatment of Rheumatoi Arthritis.**
EMERSON WARD, PHILIP S. HENCH, CHARLES H. SLOCUMB and HOWARD F. POLLEY, Rochester, Minn.

**Billings Lecture: Focal Infection: Status After Forty Years.**
George H. Coleman, Chicago.

**Further Experiences with Procaine Amide in Treatment of Skeletal Pain.** Eugene F. Traut, Chicago.

**The Treatment of Diffuse Progressive Scleroderma.**
James A. Evans, Boston; Hyman J. Rubitsky, Roxbury, Mass., and Albert W. Perry, Victoria, B. C., Canada.

**Psychosomatic Disorders and the Non-Psychiatrist.**
Bernard I. Lewis, Iowa City.

**The Current Status of Anti-Microbial Therapy of Tuberculosis.**
David T. Carr, Rochester, Minn.

### Wednesday, June 11—2 p. m.

ELECTION OF OFFICERS

**The Treatment of Cardiac Arrhythmias by Quinidine, Pronestyl, and Potassium Salts.** John J. Sampson, San Francisco.

**The Complications and Sequelae of Acute Myocardial Infarction.** A. Carlton Ernstene, Cleveland.

**Chairman's Address:** Carter Smith, Atlanta, Ga.

**End Result Study of 100 Patients with Advanced Heart Disease Treated with Radioiodine.**

Henry L. Jaffe, Maurice H. Rosenfeld, Frederick W. Pobirs, and Laurence J. Stuppy, Los Angeles.

**An Evaluation of New Anticoagulants.**
Irving S. Wright, New York.

**The Diagnosis and Treatment of Acquired Hemolytic Anemia.**

Milton S. Sacks, Joseph B. Workman, and Elsa F. Jahn, Baltimore.

**Treatment of Chronic Leukemias: Results of Treatment of 163 Patients by Titrated, Regularly Spaced Total Body Radioactive Phosphorus or Roentgen Irradiation.**

Edwin E. Osgood and Arthur J. Seaman, Portland, Ore.

### Thursday, June 12—9 a. m.

JOINT MEETING WITH SECTION ON EXPERIMENTAL MEDICINE AND THERAPEUTICS

*Symposium on Recent Advances in Diabetes Mellitus*

**Pathogenesis.** DeWitt Stetten Jr., New York.

Discussion to be opened by Rachmiel Levine and Konrad Bloch, Chicago.

**Ocular Changes.** Jonas S. Friedenwald, Baltimore.

Discussion to be opened by Paul Kimmelstiel, Charlotte, N. C.; Francis H. Adler, Philadelphia, and George W. Dana, Baltimore.

**Degenerative Vascular Complications.**
Alexander Marble, Boston.

Discussion to be opened by Lester J. Palmer, Seattle, and James W. Sherrill, La Jolla, Calif.

**Modern Treatment.** Henry T. Ricketts, Chicago.

Discussion to be opened by Carlos P. Lamar, Miami, Fla., and Blair Holcomb, Portland, Ore.

**Diabetic Coma.**
Randall G. Sprague, Rochester, Minn.

Discussion to be opened by Henry B. Mulholland, Charlottesville, Va., and James A. Greene, Houston, Texas.

**The Improved Outlook of the Diabetic Patient.**
Edwin L. Rippy, Dallas, Texas.

Discussion to be opened by Russell M. Wilder, Bethesda, Md., and Leon S. Smelo, Birmingham, Ala.

## SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

MEETS IN GRAND BALLROOM, HOTEL SHERATON

OFFICERS OF SECTION

Chairman—Carl H. McCaskey, Indianapolis.
Vice Chairman—Fred W. Dixon, Cleveland.
Secretary—Sam H. Sanders, Memphis, Tenn.
Executive Committee—William H. Johnston, Santa Barbara, Calif.; J. Milton Robb, Detroit; Carl H. McCaskey, Indianapolis.

### Tuesday, June 10—2 p. m.

**Some Practical Aids in the Management of Otolaryngologic Allergy.** F. Lambert McGannon, Lakewood, Ohio.

Discussion to be opened by Walter E. Owen, Peoria, Ill., and George E. Shambaugh Jr., Chicago.

**The Differential Diagnosis and the Present and Future Treatment of Certain Types of Headache.**
Robert E. Ryan, St. Louis.

Discussion to be opened by Baynard T. Horton, Rochester, Minn.

**The Problem of the Sore Mouth.**

Russell A. Sage and Maynard K. Hine, Indianapolis.

Discussion to be opened by Paul M. Moore, Cleveland, and O. E. Hallberg, Rochester, Minn.

**The Use and Abuse of Antibiotics in Otolaryngological Conditions.**

John J. Shea, Memphis, Tenn., and John J. Shea Jr., Camp Bainbridge, Md.

Discussion to be opened by O. E. Van Alyea, Chicago, and K. M. Simonton, Rochester, Minn.

**Dissections of the Neck.**
William Clyde Huffman, Iowa City.

Discussion to be opened by Eugene W. Scheldrup, Iowa City, and John J. Conley, New York.

### Wednesday, June 11—2 p. m.

BUSINESS SESSION

ELECTION OF OFFICERS

**Chairman's Address: How Much Otolaryngology Should Be Taught to the General Practitioner?**
Carl H. McCaskey, Indianapolis.

**Unilateral Paralysis of the Vocal Cords.**
Louis H. Clerf, Philadelphia.

Discussion to be opened by Oliver W. Suehs, Austin, Texas, and Lewis F. Morrison, San Francisco.

**Autonomic Disfunction in the Inner Ear.**
NEILL GOLTZ, St. Paul.

Discussion to be opened by RAYMOND E. JORDAN, Pittsburgh, and F. W. DAVIDSON, Danville, Pa.

**The Selection of Patients for Surgical Procedures in Chronic Suppurative Otitis Media.**
K. M. SIMONTON, Rochester, Minn.

Discussion to be opened by ROBERT BOSWELL, Dayton, Ohio, and ROBERT B. LEWY, Chicago.

### Thursday, June 12—9. a. m.

JOINT MEETING WITH SECTION ON PEDIATRICS IN ROOM 5, NAVY PIER

*Round Table Discussion on the Relationship Between Surgery of the Nose and Throat to the Incidence and Severity of Poliomyelitis*

Participants:

ALDEN MILLER, Los Angeles.
JAMES L. WILSON, Ann Arbor, Mich.
TOM C. GALLOWAY, Evanston, Ill.
FRANKLIN H. TOP, Minneapolis.

## SECTION ON MILITARY MEDICINE

MEETS IN ROOM 6, NAVY PIER

OFFICERS OF SECTION

Chairman—MELVIN A. CASBERG, Washington, D. C.
Vice Chairman—RICHARD A. KERN, Philadelphia.
Secretary—SHELDON S. BROWNTON, Washington, D. C.

### Tuesday, June 10—9 a. m.

JOINT MEETING WITH SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH AND SECTION ON RADIOLOGY

**Atomic Warfare Defense and the Navy.**
H. H. HAIGHT, Washington, D. C.

Discussion to be opened by H. S. ETTER, Washington, D. C.

**logic Effects of Total Body Irradiation.**
ELBERT DECOURSEY, Washington, D. C.

Discussion on papers of Drs. Haight and DeCoursey to be opened by GERALD M. MCDONNEL, Washington, D. C.

**Diseases of the Chest Having an Occupational Origin: Industrial Medical Aspects.** FRANK PRINCI, Cincinnati.

**Diseases of the Chest Having an Occupational Origin: Radiologic Aspects.**
EUGENE P. PENDERGRASS, Philadelphia.

Discussion on papers of Drs. Princi and Pendergrass to be opened by OSCAR A. SANDER, Milwaukee.

**The Present Status of Mass Screening Technics for Chest: Industrial Medical Aspects.**
O. MERTON DERRYBERRY, Chattanooga, Tenn.

**The Present Status of Mass Screening Technics for Chest: Radiologic Aspects.**
ARTHUR C. CHRISTIE, Washington, D. C.

Discussion on papers of Drs. Derryberry and Christie to be opened by LEO G. RIGLER, Minneapolis.

### Wednesday, June 11—9 a. m.

ELECTION OF OFFICERS

**Chairman's Address: Military Medicine.**
MELVIN A. CASBERG, Washington, D. C.

Discussion to be opened by the Surgeon General of the Army; the Surgeon General of the Navy, and the Surgeon General of the Air Force.

**Plasma Expanders.** I. S. RAVDIN, Philadelphia.

Discussion to be opened by DOUGLAS B. KENDRICK JR., Washington, D. C., and LLOYD R. NEWHOUSER, Chelsea, Mass.

**The Treatment of Acute Amebic Dysentery in a Prisoner of War Camp.** WILLIAM W. FRYE, New Orleans.

**Wound Ballistics and Body Armor.**
ROBERT H. HOLMES, Washington, D. C.

Discussion to be opened by JOHN S. COWAN, Washington, D. C., and OSCAR P. HAMPTON JR., St. Louis.

**Current Military Psychiatric Problems.**
ALBERT J. GLASS, San Francisco.

Discussion to be opened by DONALD W. HASTINGS, Minneapolis.

### Thursday, June 12—9 a. m.

**Shock and Vascular Injury.**
HARRIS B. SHUMACKER, JR., Indianapolis.

Discussion to be opened by HOWARD E. SNYDER, Winfield, Kan., and C. ROLLINS HANLON, St. Louis.

**Flight Beyond the Atmosphere.**
PAUL A. CAMPBELL, Randolph Field, Texas.

Discussion to be opened by W. RANDOLPH LOVELACE II, Albuquerque, N. M.; ROBERT H. BLOUNT, Dayton, Ohio, and F. J. FRESE, Randolph Field, Texas.

*Panel Discussion on Medical Military Personnel Matters*
STANLEY W. OLSON, Chicago, Moderate.

## SECTION ON MISCELLANEOUS TOPICS

### SESSION ON ALLERGY

MEETS IN ROOM 4, NAVY PIER

OFFICERS OF SECTION

Co-Chairman—HAROLD A. ABRAMSON, New York; HORACE S. BALDWIN, New York.
Secretary—HAL M. DAVISON, Atlanta, Ga.

### Wednesday, June 11—2 p. m.

**Psychodynamic Pharmacology of the Treatment of Asthma.**
HAROLD A. ABRAMSON, New York

**The Skin Test and Its Diagnostic Value in Clinical Allergy.**
JOHN M. SHELDON, Ann Arbor, Mich

**Pollen and Mould Allergy in the Southwest.**
BOEN SWINNEY, San Antonio, Texas

**Infectious Factors in Pediatric and Adult Allergy.**
ROBERT CHOBOT, New York

*Panel Discussion on ACTH and Cortisone and Their Use in the Allergic Diseases.*

HORACE S. BALDWIN, New York, Moderator

Panel:

CARL E. ARBESMAN, Buffalo.
AUGUSTUS GIBSON, Rahway, N. J.
ALBERT H. HOLLAND, Chicago.
GILES A. KOELSCHE, Rochester, Minn.
M. MURRAY PESHKIN, New York.
BRAM ROSE, Montreal, Canada.

## SECTION ON NERVOUS AND MENTAL DISEASES

MEETS IN ROOM 7, NAVY PIER

OFFICERS OF SECTION

Chairman—Frank H. Luton, Nashville, Tenn.

Vice Chairman—A. Earl Walker, Baltimore.

Secretary—Francis M. Forster, Washington, D. C.

Executive Committee—Frederick P. Moersch, Rochester, Minn.; Louis J. Karnosh, Cleveland; Frank H. Luton, Nashville, Tenn.

### Tuesday, June 10—9 a. m.

**Experimental Head Injury.** Arthur A. Ward Jr., Seattle.

Discussion to be opened by Joseph P. Evans, Cincinnati, and A. Earl Walker, Baltimore.

**Thrombosis of the Internal Carotid Artery in the Neck and in the Cranial Cavity: Symptoms and Signs, Diagnosis and Treatment.**

E. S. Gurdjian and John E. Webster, Detroit.

Discussion to be opened by Carl F. List, Grand Rapids, Mich., and Michael Scott, Philadelphia.

**The Surgical Treatment of Cervical Intervertebral Disc Lesions.**

R. Glen Spurling and Ludwig H. Segerberg, Louisville, Ky.

Discussion to be opened by Loyal Davis, Chicago, and Hans H. Reese, Madison, Wis.

**The Recognition of Surgically Treatable Neurologic Disorders of Childhood.**

Jonathan M. Williams and Harold Stevens, Washington, D. C.

Discussion to be opened by Alex J. Arieff and Harold C. Voris, Chicago.

**Large Intracranial Calcified Lesions: A Clinical Evaluation of a Small Series of Cases.** Harry Wilkins, Oklahoma City.

Discussion to be opened by Keasely Welch, Detroit, and Percival Bailey, Chicago.

**The Simulation of Degenerative Diseases of the Spinal Cord by Neoplasms of the Central Nervous System.**

H. R. Oberhill, Roger A. Smith, and Paul C. Bucy, Chicago.

Discussion to be opened by Benjamin Lichtenstein and Eric Oldberg, Chicago.

### Wednesday, June 11—9 a. m.

ELECTION OF OFFICERS

**Chairman's Address: The Psychiatrist, His Obligations and Opportunities.** Frank H. Luton, Nashville, Tenn.

**Non-Dementing Psychosis in Older Individuals.**

John J. Madden, Joseph A. Luhan, Leo A. Kaplan, and Harold M. Manfredi, Chicago.

Discussion to be opened by Raymond Waggoner, Ann Arbor, Mich., and Herbert S. Gaskill, Indianapolis.

**Tension Headache.**

Arnold P. Friedman, Naomi de Sola Pool, and Theodore J. C. von Storch, New York.

Discussion to be opened by Frederick P. Moersch, Rochester, Minn., and Francis J. Gerty, Chicago.

**Emotional Factors in Scleroderma.**

John M. McMahon, Russell R. Monroe, and Claude C. Craighead, New Orleans.

Discussion to be opened by S. Howard Armstrong and Franz G. Alexander, Chicago.

**Group Therapy in a County Tuberculosis Sanatorium.**

Harry A. Wilmer, Menlo Park, Calif.

Discussion to be opened by Alphonse R. Vonderahe, Cincinnati, and David Boyd Jr., Rochester, Minn.

**Psychiatric Symptoms Associated with Lesions of the Temporal Lobe.**

Donald W. Mulder and David Daly, Rochester, Minn.

Discussion to be opened by Spafford Ackerly, Louisville, Ky., and Frederick A. Gibbs, Chicago.

### Thursday, June 12—9 a. m.

**Evaluation of the Results of Treatment of Cerebral Infarcts (Strokes).**

Clark H. Millikan, John S. Lundy and Lucian A. Smith, Rochester, Minn.

Discussion to be opened by Roland P. Mackay, Chicago, and Seymour Kety, Bethesda, Md.

**Anomic Aphasia: Its Differential Diagnosis and Cerebral Localization with a Study of Twenty Cases.**

Cary G. Suter, Charlottesville, Va.

Discussion to be opened by Pearce Bailey, Bethesda, Md., and Richard B. Richter, Chicago.

**Recent Acquisition to Our Knowledge About Poliomyelitis.**

Henry W. Kumm, New York.

Discussion to be opened by Mabel G. Masten, Madison, Wis., and Hilary Koprowski, Pearl River, N. Y.

**Infectious Neuronitis: Present Concepts Concerning Etiology and Treatment.**

Karl O. von Hagen and Robert N. Baker, Los Angeles.

Discussion to be opened by Madeline Brown, Boston, and Ephraim Roseman, Louisville, Ky.

**Convulsions As a Manifestation of Multiple Sclerosis.**

Guy H. Williams Jr., William A. Nosik, and John A. Hunter, Cleveland.

Discussion to be opened by Benjamin Boshes, Chicago, and Howard D. McIntyre, Cincinnati.

**Advances in the Control of Tremor.**

L. J. Doshay, K. C. Constable, and S. Frommer, New York.

Discussion to be opened by Russell N. De Jong, Ann Arbor, Mich., and Henry von Witzleben, Chicago

## SECTION ON OBSTETRICS AND GYNECOLOGY

MEETS IN ROOM 5, NAVY PIER

OFFICERS OF SECTION

Chairman—Louis H. Douglass, Baltimore.

Vice Chairman—Albert W. Holman, Portland, Ore.

Secretary—Bernard J. Hanley, Los Angeles.

Executive Committee—James R. Bloss,* Huntington, W. Va.; Arthur B. Hunt, Rochester, Minn.; Louis H. Douglass, Baltimore.

### Tuesday, June 10—2 p. m.

**Intravenous Administration of Posterior Pituitary Extract Before and During Labor.**

Martin L. Stone and Alfred Tanz, New York.

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* Deceased

**N-Allyl Normorphine: An Antagonist to Neonatal Narcosis Produced by Parturient Sedation.**
James E. Eckenhoff, George L. Hoffman Jr., and Lonnie W. Funderburg, Philadelphia.

**Etiology and Treatment of Leg Cramps in Pregnancy.**
Ernest W. Page and Emery P. Page, San Francisco.

**Abruptio Placentae: Certain Concepts in Its Management.**
Charles S. Stevenson, Charles L. Schneider and Robert G. Braden, Detroit.

**The Post-Partum Cervix.**
John H. Moore and Frank A. Hill, Grand Forks, N. D.

**A New Etiologic Factor in Ectopic Pregnancy.**
Leon Krohn, Maurice S. Priver, and Milton H. Gotlib, Los Angeles.

### Wednesday, June 11—2 p. m.

ELECTION OF OFFICERS

**Chairman's Address.** Louis H. Douglass, Baltimore.

**Uses of the Hysteroscope in Gynecological Diagnosis.**
William B. Norment, Greensboro, N. C.

**Exebiatric Gynecology.** LeMon Clark, Oklahoma City.

**Vaginal Hysterectomy for Uterine Prolapse: Report of 1,000 Cases.**
Vincent P. Mazzola, N. J. Mazzola, Frances V. Mitchell, Henry L. Martone and David Fettis, Brooklyn.

**Is This Hysterectomy Necessary?**
James C. Doyle, Beverly Hills, Calif.

### Thursday, June 12—2 p. m.

**Excessive Surgery in Hysteria.**
Duncan E. Reid, Mandel E. Cohen, and Eli Robins, Boston.

**A Review of 4,000 Biopsies of the Cervix with Relation to Carcinoma in Situ.**
David M. Farell, Jacob Hoffman, and George A. Hahn, Philadelphia.

**Changing Indications for Therapeutic Abortion: Twenty Years' Experience at the Los Angeles County Hospital.**
Keith P. Russell, Los Angeles.

**t Is the Status of Therapeutic Abortion in Modern Obstetrics?**
Roy J. Heffernan and William A. Lynch, Brookline, Mass.

**Vitamins in the Etiology and Treatment of Eclamptic Toxemia.**
Sherman S. Garrett, Champaign, Ill.

## COMBINED MEETING OF SECTION ON OPHTHALMOLOGY WITH ASSOCIATION FOR RESEARCH IN OPHTHALMOLOGY

MEETS IN THORNE HALL, NORTHWESTERN UNIVERSITY

**Association for Research in Ophthalmology**

OFFICERS

Chairman—David G. Cogan, Boston.
Secretary—James H. Allen, New Orleans.

*Program of Association for Research in Ophthalmology*

### Tuesday, June 10—9 a. m.

**The Development of the Extrinsic Muscles of the Eye.**
Walter H. Fink, Minneapolis.

**Channels in the Crystalline Lens Capsule.**
R. H. Monahan, Minneapolis.

**An Experimental Analysis of Lens Regeneration.**
Leon S. Stone, New Haven, Conn.

**Reversal of the Lenticular Cation Shift Induced by Cold.**
John E. Harris, Leta B. Gehrsitz, and Loretta T. Nordquist, Portland, Ore.

**On the Catalase of Crystalline Lens.** E. A. Zeller, Chicago.

**Nucleotides and Glutathione of the Capsule and Epithelium of the Lens Under Physiological and Abnormal Conditions.**
Zacharias Dische, Gabrielle Ehrlich, Carmen M. Munoz, and Ludwig von Sallmann, New York.

### Wednesday, June 11—9 a. m.

**The Use of Several New Products as a Substitute for Homatropine.** Samuel V. Abraham, Los Angeles.

**Studies in Antibiotic Antagonism and Synergism.**
John C. Locke, Montreal, Canada.

**Studies on the Effect of Nor-Adrenalin and Adrenalin on the Eye.**
Ludwig von Sallmann, M. P. Meyers, and B. Pillat, New York.

**Experimentally Induced Toxic Effects on Structure and Function of Visual Cells and Pigment Epithelium.**
W. K. Noell, Randolph Field, Texas.

**Effect of Cortisone in Experimental Vaccinial Keratitis.**
Hilda Geller, Sam Kimura, and Phillips Thygeson, San Jose, Calif.

**Effect of Cortisone in Wound Healing, Experimental Corneal Transplantation, and Corneal Vascularization.**
Gaylord Ojers, Jules Yasuna, and Harold G. Scheie, Philadelphia.

### Thursday, June 12—9 a. m.

**The Nutrition of Corneal Regions in Experimental Animals: II. The Corneal Transparency Problem and the Tonicity of Tears.**
Albert M. Potts and Mildred Orchen, Cleveland.

**Direction Sense of the Eye.** Elek Ludvigh, Detroit.

**Further Experimental Studies on Sympathetic Ophthalmia.**
Raymond C. Collins, East Orange, N. J.

**Cyclic Changes in Facility of Aqueous Outflow in Females.**
Philip T. Shahan and William A. Moor, St. Louis.

**The Metabolism of Fluid Tissue Cultures Used for Virus Studies.**
A. E. Braley and Rose Alexander, Iowa City.

**Experimental Study of Plastic Material as a Substitute for Opaque Corneas.** William A. Stone Jr., Boston.

**Section on Ophthalmology**

OFFICERS OF SECTION

Chairman—Edwin B. Dunphy, Boston.
Vice Chairman—Georgiana M. D. Theobald, Oak Park, Ill.
Secretary—Trygve Gundersen, Boston.
Executive Committee—A. Ray Irvine, Beverly Hills, Calif.; Robert J. Masters, Indianapolis; Edwin B. Dunphy, Boston.

*Program of Section on Ophthalmology*

### Tuesday, June 10—2 p. m.

**Chairman's Address.** Edwin B. Dunphy, Boston.

**The Clinical Significance of Some Congenital Changes in the Optic Disc.** Arthur J. Bedell, Albany, N. Y.
Discussion to be opened by Frank B. Walsh, Baltimore.

**Clinico-Pathology of Ocular Foreign Bodies.**
Bernard A. Roberts, Abraham Schlossman, and Edgar B. Burchell, New York.
Discussion to be opened by Helenor C. Wilder, Washington, D. C.

**Drug Sensitivities and Irritations of the Conjunctiva.**
Frederick H. Theodore, New York.
Discussion to be opened by Albert N. Lemoine, Kansas City, Mo.

**Retinitis Pigmentosa.** James M. O'Brien, Bridgeport, Conn.

**Surgery of the Vertical Phorias.**
Roderic O'Connor, Oakland, Calif.
Discussion to be opened by Francis H. Adler, Philadelphia.

**Retrolental Fibroplasia: A Clinical Report.**
Loren P. Guy, New York.

**The Visual Fields, the Discs and Their Fate in Pituitary Tumors.**
Oscar Hirsch, Boston, and Hannibal Hamlin, Providence, R. I.
Discussion to be opened by Gilbert Horrax, Boston.

### Wednesday, June 11—2 p. m.

EXECUTIVE SESSION

ELECTION OF OFFICERS

**Address of Invited Foreign Guest.**
Giambattista Bietti, Pavia, Italy.

**Normal and Reversed Vision in Transplanted Eyes.**
L. S. Stone, New Haven, Conn.

**Electroretinography and Its Clinical Application.**
Hermann M. Burian, Iowa City.

**Aqueous Veins, Their Status Eleven Years After Their Detection.** Charles K. W. Ascher, Cincinnati.
Discussion to be opened by Harold G. Scheie, Philadelphia.

**Depth of Focus and Amplitude of Accommodation Through Trifocal Glasses.** Paul W. Miles, St. Louis.
Discussion to be opened by Edwin F. Tait, Norristown, Pa.

**Demonstration of New Instruments.**

### Thursday, June 12—2 p. m.

**Address of Invited Foreign Guest.**
Holger Ehlers, Copenhagen, Denmark.

**Clinical and Experimental Studies in Hydrocortisone (Compound F) in Ophthalmology.**
P. Robb McDonald, Irving H. Leopold, and Robert D. Mulberger, Philadelphia, and A. W. Vogel, Ardmore, Pa.
Discussion to be opened by Frank W. Newell, Chicago.

**The Present Status of ACTH, Cortisone, and Compound F in Ophthalmology.**
Dan M. Gordon, John M. McLean, and Herbert Koteen, New York.
Discussion to be opened by James A. Olson, Detroit.

**Idiopathic Retinal Detachments: An Analysis of Results.**
Taylor R. Smith, Boston, and L. Harrell Pierce, Baltimore.
Discussion to be opened by Peter C. Kronfeld, Chicago.

**Curare and Local Anesthesia.**
Daniel B. Kirby and Paluel J. Flagg, New York.
Discussion to be opened by Henry K. Beecher, Boston.

**The Use of Lid Sutures in Cataract Surgery and Presentation of a New Technic.** William Stone Jr., Brookline, Mass.
Discussion to be opened by Conrad Berens, New York.

**Anterior Clinoid Meningiomas: A Cause of Unilateral Loss of Vision.** Alfred Uihlein, Rochester, Minn.
Discussion to be opened by Richard B. Pippitt, Boston.

## SECTION ON ORTHOPEDIC SURGERY

MEETS IN ROOM 2, NAVY PIER

OFFICERS OF SECTION

Chairman—Frederic C. Bost, San Francisco.
Vice Chairman—H. Relton McCarroll, St. Louis.
Secretary—Charles N. Pease, Chicago.
Executive Committee—Joseph S. Barr, Boston; Walter P. Blount, Milwaukee; Frederic C. Bost, San Francisco.

### Tuesday, June 10—2 p. m.

**Recurring Dislocation of the Shoulder: Operative Treatment, Pertinent Anatomic, Functional, and Pathologic Features.**
R. W. Newman, Iowa City.
Discussion to be opened by George L. Dixon, Tucson, Ariz., and Carlo S. Scuderi, Chicago.

**Synovectomy of the Knee Joint: Indications and End Results: A Preliminary Report.** Pio Blanco, Buffalo.
Discussion to be opened by Clinton L. Compere and William A. Larmon, Chicago.

**Tuberculous Tenosynovitis.**
William H. Bickel, Rochester, Minn.; Robert F. Kimbrough, Fort Wayne, Ind., and David C. Dahlin, Rochester, Minn.
Discussion to be opened by Frederick R. Thompson, New York, and Harvey S. Allen, Chicago.

**Paraplegia Resulting From Tuberculosis of the Spine.**
David M. Bosworth, New York; Alphonso Della Pietra, Hartford, Conn., and George Rahilly, Fort Lauderdale, Fla.
Discussion to be opened by Ignacio V. Ponseti, Iowa City, and Robert M. Ritter, Chicago.

**The Conservative and Prophylactic Surgical Management of Foot Lesions in the Diabetic.**
James W. Miller, Seattle.
Discussion to be opened by Donald C. Conzett, Dubuque, Iowa, and Jerome G. Finder, Chicago.

**The Treatment of Subacute and Chronic Osteomyelitis with the Use of Antibiotics and Primary Closure.**
Frank D. Dickson, Rex L. Diveley, and Richard H. Kiene, Kansas City, Mo.
Discussion to be opened by Theodore H. Vinke, Cincinnati, and Earl S. Leimbacher, Joliet, Ill.

### Wednesday, June 11—2 p. m.

ELECTION OF OFFICERS

**Misdiagnosis and Mismanagement of Early Intervertebral Disc Lesions.** L. Stanley Sell, Idaho Falls, Idaho.

**Myelography: Use or Abuse.** Frank L. Shipp, Boston.
Discussion on papers of Drs. Sell and Shipp to be opened by Loyal Davis, Chicago; J. Albert Key, St. Louis, and Reed S. Clegg, Salt Lake City.

**Chairman's Address:** Frederic C. Bost, San Francisco.

**Calcaneovalgus Foot in the Newborn and Its Relation to Developmental Flat Foot.**
C. Fred Ferciot and Frederick S. Webster, Lincoln, Neb.
Discussion to be opened by Walter P. Blount, Milwaukee, and Albert L. Bershon, Toledo, Ohio.

**Hemangiomata in Orthopedic Surgery.**
James B. Weaver, Kansas City, Kan.
Discussion to be opened by J. Vernon Luck, Los Angeles, and Robert D. Moore, Kankakee, Ill.

### Thursday, June 12—2 p. m.

**Trigger-Point Scapulo-Costal Syndrome.**
Arthur A. Michele, Brooklyn.
Discussion to be opened by Mary Ruth Jackson, Dallas, Texas, and Jesse B. Griffith, Pittsburgh.

**The Conservative Management of the Fractures of the Ankle Involving the Medial Malleolus.**
Robert B. Portis and Howard A. Mendelsohn, Beverly Hills, Calif.
*Discussion to be opened by* Fred L. Stuttle, Peoria, Ill., and Alan R. Cantwell, New York.

**The Problem of the Muscular Dystrophies.**
Robert H. Ramsey and H. Relton McCarroll, St. Louis.
*Discussion to be opened by* W. M. Roberts, Gastonia, N. C., and William J. Schnute, Chicago.

**Fracture of the Carpal Scaphoid.**
Marcus J. Stewart, Memphis, Tenn.
Discussion to be opened by F. W. Carruthers, Little Rock, Ark., and Newton C. Mead, Evanston, Ill.

**Evaluation of Twenty Successive Unselected Cases of Intramedullary Fixation of Fractures of the Forearm.**
R. C. Robertson and John J. Killeffer, Chattanooga, Tenn.

**The Treatment of Certain Fractures of the Forearm with Kuntscher Nail.**
J. E. M. Thomson, Duane A. Willander and Edward S. Maxim, Lincoln, Neb.
Discussion on papers of Drs. Robertson and Killeffer and Thomson, Willander and Maxim to be opened by Dana M. Street, Memphis, Tenn., and Bruce Brewer, Milwaukee.

## SECTION ON PATHOLOGY AND PHYSIOLOGY

MEETS IN ROOM 6, NAVY PIER

### OFFICERS OF SECTION

Chairman—Paul R. Cannon, Chicago.
Vice Chairman—L. G. Montgomery, Muncie, Ind.
Secretary—Edwin F. Hirsch, Chicago.
Executive Committee—Frank W. Konzelmann, Atlantic City, N. J.; Stanley P. Reimann, Philadelphia; Paul R. Cannon, Chicago.

### Tuesday, June 10—2 p. m.

**An Analysis of the Value of Chemotherapeutic Agents in the Treatment of Tuberculosis.** Harry J. Corper, Denver.
Discussion to be opened by Osborne A. Brines, Detroit, and Willard Van Hazel, Chicago.

**The Normal and Pathological Physiology of the External Pancreatic Secretion.** J. Earl Thomas, Philadelphia.
Discussion to be opened by M. I. Grossman, Chicago, and V. Brown Scott, Shelbyville, Ind.

**The Present Status of Blood Substitutes.**
Frank W. Hartman, Detroit.
Discussion to be opened by Clyde G. Culbertson, Indianapolis, and D. H. Kaump, Detroit.

**Fungus Infections: (A) Resectable Mycotic Lesions: (B) Acutely Fatal Mycoses.** Roger D. Baker, Birmingham, Ala.
Discussion to be opened by Duane Carr, Memphis, Tenn., and Lyle Weed, Rochester, Minn.

**Cortisone in the Treatment of Experimentally Produced Myocardial Infarcts in Dogs.**
Aran S. Johnson, Schayel R. Scheinberg, Robert A. Gerisch, and Harry C. Saltzstein, Detroit.
Discussion to be opened by Louis N. Katz, Chicago, and Gordon B. Myers, Detroit.

### Wednesday, June 11—2 p. m.

ELECTION OF OFFICERS

**Chairman's Address: Problems of Parenteral Alimentation.**
Paul R. Cannon, Chicago

**Some Epidemiological Aspects of Pulmonary Histoplasmosis.**
Clayton G. Loosli, Chicago.
Discussion to be opened by Roger D. Baker, Birmingham, Ala, and Lyle Weed, Rochester, Minn.

**Tests of Pulmonary Function Using Recording Oximeters.**
John F. Perkins Jr., William E. Adams, and Adolfo Flores, Chicago.
Discussion to be opened by William M. Lees and Robert H. Ebert, Chicago.

**Human Significance of Experimental Carcinogenesis.**
Paul E. Steiner, Chicago.
*Discussion to be opened by* Stanley P. Reimann, Philadelphia, and William B. Wartman, Chicago.

**Experimental Glomerulonephritis.**
Cecil A. Krakower, Chicago.
Discussion to be opened by J. P. Simonds and Granville A. Bennett, Chicago.

### Thursday, June 12—9 a. m.

JOINT MEETING WITH SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY IN ROOM 4, NAVY PIER

**The Thymus and Thymic Tumors in *Myasthenia Gravis.***
Eleanor M. Humphreys, Chicago.
*Discussion to be opened by* J. Alfred Rider and Edwin F. Hirsch, Chicago.

**The Treatment of Nutritional Anemia.**
Byron E. Hall, Rochester, Minn.
Discussion to be opened by Grant H. Laing and Leon Jacobson, Chicago.

**The Meaning of Bone Marrow Studies: A Clinical Pathological Evaluation.** Louis R. Limarzi, Chicago.
Discussion to be opened by S. A. Levinson and Matthew H. Block, Chicago.

**Acute Esophageal and Gastric Hemorrhage.**
Burrill B. Crohn and Henry D. Janowitz, New York.
Discussion to be opened by Leon Schiff, Cincinnati, and J. D. Stewart, Buffalo.

***The Etiology of Pain in the Ano Rectal Region.***
John R. Hill, Rochester, Minn.
Discussion to be opened by Willard L. Cooper, Lexington, Ky., and Lyman R. Pearson, Indianapolis.

## SECTION ON PEDIATRICS

MEETS IN ROOM 5, NAVY PIER

### OFFICERS OF SECTION

Chairman—Walter B. Stewart, Atlantic City, N. J.
Vice Chairman—Eugene T. McEnery, Chicago.
Secretary—Wyman C. C. Cole, Detroit.
Executive Committee—Margaret Mary Nicholson, Washington, D. C.; Joseph B. Bilderback, Portland, Ore.; Walter B. Stewart, Atlantic City, N. J.

### Tuesday, June 10—9 a. m.

*Symposium on the Present Status of Corticotropin, Cortisone and Allied Substances in Pediatric Practice*

Edward W. Boland, Los Angeles, Moderator

**Practical Considerations in the Clinical Application of Cortisone, Hydrocortisone (Compound F), and Corticotropi (ACTH).** Edward W. Boland, Los Angeles

**Corticotropin and Cortisone in the Treatment of Rheumati Fever and Rheumatoid Arthritis in Children.**
Joseph J. Bunim, New York

**Corticotropin (ACTH) and *Cortisone in the* Treatment o Asthma and Eczema.** William B. Sherman, New York

**Corticotropin and Cortisone in the Management of the Nephrotic Syndrome in Children**
Conrad M. Riley, New York

**Corticotropin and Cortisone in the Management of Disease of the *Blood in Children.***
J. M. Stickney and S. D. Mills, Rochester, Minn

**The Use of Corticotropin and Cortisone in Shock, Burns, an Overwhelming Infection.**
Laurance W. Kinsell, Oakland, Calif

### Wednesday, June 11—9 a. m.

BUSINESS MEETING.
ELECTION OF OFFICERS.

**Chairman's Address:** Walter B. Stewart, Atlantic City, N. J.

**Prophylaxis of Retrolental Fibroplasia by Oxygen Administration.** T. S. Szewczyk, East St. Louis, Ill.
Discussion to be opened by T. E. Sanders, St. Louis; Heyworth N. Sanford, Chicago, and A. D. Ruedemann, Detroit.

**Resuscitation in Infants and Children.**
H. M. Slater, Montreal, Canada.
Discussion to be opened by Doris C. Grosskreutz, Hartford, Conn., and Joseph Kreiselman, Washington, D. C.

**Fetal Abnormalities in Caesarian Sections.**
Harry R. Litchfield, Brooklyn, Charles Hoffman, Levittown, N. Y., and Richard Turin, Brooklyn.
Discussion to be opened by Edith Potter and Benjamin M. Kagan, Chicago.

**Migraine in Children.**
George R. Krupp, Rockville Centre, N. Y., and Arnold P. Friedman, New York.
Discussion to be opened by Samuel Livingston, Baltimore.

ANNUAL PEDIATRIC BANQUET, 6:30 P.M.
SVITHIOD SINGING CLUB, 624 W. WRIGHTWOOD AVE.

### Thursday, June 12—9 a. m.

JOINT MEETING WITH SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

*Round Table Discussion on the Relationship Between Surgery of the Nose and Throat to the Incidence and Severity of Poliomyelitis*

## SECTION ON PHYSICAL MEDICINE AND REHABILITATION

MEETS IN ROOM 8, NAVY PIER

### OFFICERS OF SECTION

Chairman—Howard A. Rusk, New York.
Vice Chairman—Kristian G. Hansson, New York.
Secretary—Walter J. Zeiter, Cleveland.
Executive Committee—Frank H. Krusen, Rochester, Minn.; George Morris Piersol, Philadelphia; Howard A. Rusk, New York.

### Tuesday, June 10—2 p. m.

**The Council on Physical Medicine and Rehabilitation.**
Ralph E. DeForest, Chicago.
Discussion to be opened by Frank H. Krusen, Rochester, Minn.

**Scapulocostal Syndrome: The Pathology, Diagnosis, and Treatment.** Allen S. Russek, New York.
Discussion to be opened by K. G. Hansson, New York.

**Clinical Aspects of Geriatric Rehabilitation.**
Michael M. Dacso, New York.
Discussion to be opened by Walter M. Solomon, Cleveland.

**What the Clinician Should Know About Electromyography.**
O. Leonard Huddleston, Santa Monica, Calif.
Discussion to be opened by Arthur L. Watkins, Boston.

**Cortisone in the Treatment of the Hemiplegic.**
Henry I. Russek, Staten Island, New York.

### Wednesday, June 11—2 p. m.

ELECTION OF OFFICERS

**Chairman's Address: Rehabilitation Pays Dividends.**
Howard A. Rusk, New York.

*Symposium on Cerebral Palsy with Patient Demonstration*
George G. Deaver, New York, Moderator

**Differential Diagnostic Hints in Cerebral Palsy.**
Meyer A. Perlstein, Chicago.

**Surgical Procedures in Cerebral Palsy.**
Harry E. Barnett, Chicago.

**Speech Development in Cerebral Palsy.**
Harold Westlake, Evanston, Ill.

### Thursday, June 12—9 a. m.

JOINT MEETING WITH SECTION ON GENERAL PRACTICE IN ROOM 2, NAVY PIER

*Symposium on Hemiplegia*

**Hemiplegia: Pathology and Differential Diagnosis.**
Louis J. Karnosh, Cleveland.
Discussion to be opened by Morton Marks, New York.

**Hemiplegia: Treatment in the Acute Phase.**
Earl C. Elkins and Joseph G. Rushton, Rochester, Minn.
Discussion to be opened by Sedgwick Mead, St. Louis.

**Hemiplegia: Rehabilitation Procedures.**
Leonard Jerome Yamshon, Los Angeles.
Discussion to be opened by Harold Dinken, Denver.

**Early Management of the Paraplegic.**
Donald A. Covalt, Irving S. Cooper, and Thomas Hoen, New York.
Discussion to be opened by Louis B. Newman, Hines, Ill.

**Poliomyelitis: Present Concepts of Physical Medicine and Rehabilitation.** Duane A. Schram, Gonzales, Texas.
Discussion to be opened by Robert L. Bennett, Warm Springs, Ga.

## SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH

MEETS IN ROOM 9, NAVY PIER

### OFFICERS OF SECTION

Chairman—Carey P. McCord, Ann Arbor, Mich.
Vice Chairman—Vlado A. Getting, Boston.
Secretary—Jean S. Felton, Oak Ridge, Tenn.
Executive Committee—C. N. Neupert, Madison, Wis.; Rutherford T. Johnstone, Los Angeles; Carey P. McCord, Ann Arbor, Mich.

### Tuesday, June 10—9 a. m.

JOINT MEETING WITH SECTION ON MILITARY MEDICINE AND SECTION ON RADIOLOGY IN ROOM 6, NAVY PIER

**Atomic Warfare Defense and the Navy.**
H. H. Haight, Washington, D. C.
Discussion to be opened by H. S. Etter, Washington, D. C.

**Pathologic Effects of Total Body Irradiation.**
Elbert DeCoursey, Washington, D. C.
Discussion on papers of Drs. Haight and DeCoursey to be opened by Gerald M. McDonnel, Washington, D. C.

**Diseases of the Chest Having an Occupational Origin: Industrial Medical Aspects.**
Frank Princi, Cincinnati.

**Diseases of the Chest Having an Occupational Origin: Radiologic Aspects.**
Eugene P. Pendergrass, Philadelphia.
Discussion on papers of Drs. Princi and Pendergrass to be opened by Oscar A. Sander, Milwaukee.

**The Present Status of Mass Screening Technics for Chest: Industrial Medical Aspects.**
O. Merton Derryberry, Chattanooga, Tenn.

**The Present Status of Mass Screening Technics for Chest: Radiologic Aspects.**

ARTHUR C. CHRISTIE, Washington, D. C.

Discussion on papers of Drs. Derryberry and Christie to be opened by LEO G. RIGLER, Minneapolis.

### Wednesday, June 11—2 p. m.

ELECTION OF OFFICERS

**Chairman's Address: The Acceptance of Industrial Medicine and Public Health Within the Medical Profession.**

CAREY P. MCCORD, Ann Arbor, Mich.

*Industrial Medicine on the International Scene*

**Some Aspects of Preventive Medicine in an Atomic Energy Establishment.**

KATHARINE WILLIAMS, Harwell, England.

Discussion to be opened by R. J. HASTERLIK, Chicago.

**Rehabilitation in Puerto Rico.**

H. D. STORMS, Santurce, Puerto Rico.

Discussion to be opened by CHARLES L. NEWBERRY, Bethesda, Md.

**Industrial Medicine in Sweden: Recent Experiences and Future Problems.** SVEN FORSSMAN, Stockholm, Sweden.

Discussion to be opened by HARRIET L. HARDY, Cambridge, Mass., and CARL M. PETERSON, Chicago.

***Industrial Medicine in Canada.***

H. GRAHAM ROSS, Montreal, Canada.

Discussion to be opened by CLARENCE D. SELBY, Ann Arbor, Mich.

**The Industrial Medical Interests of the World Health Organization.** MILTON I. ROEMER, Geneva, Switzerland.

**Occupational Skin Cancer in Tar Workers: Report of a Survey.**

R. E. W. FISHER, London, England.

Discussion to be opened by R. C. PAGE, New York.

### Thursday, June 12—2 p. m.

**lic Health Aspects of Arthritis.**

RUSSELL M. WILDER, Bethesda, Md.

Discussion to be opened by RICHARD H. FREYBERG, New York.

**Patient Education Through the Cleveland Health Museum: A Ten Year Review.** BRUNO GEBHARD, Cleveland.

Discussion to be opened by ROBERT M. STECHER, Cleveland.

**Public Health Aspects and Prevention of Bronchopulmonary Disease.** WALTER FINKE, Rochester, N. Y.

Discussion to be opened by HUSTON K. SPANGLER, Washington, D. C.

**Public Health Aspects of the Speech and Hearing Problems.**

ROBERT M. FOOTE, Nashville, Tenn.

Discussion to be opened by EDWARD DAVENS, Baltimore.

**State Health Organization Today and a Decade Ago.**

J. W. MOUNTIN, Washington, D. C.

Discussion to be opened by VLADO A. GETTING, Boston.

**The Adaptation of Public Health Technics to Industrial Medicine.** WILLIAM T. DORAN JR., Baltimore.

Discussion to be opened by JOHN PHAIR, Cincinnati.

## SECTION ON RADIOLOGY

MEETS IN ROOM 1, NAVY PIER

OFFICERS OF SECTION

Chairman—IRA H. LOCKWOOD, Kansas City, Mo.

Vice Chairman—PAUL C. HODGES, Chicago.

Secretary—TRAIAN LEUCUTIA, Detroit.

Executive Committee—U. V. PORTMANN, Cleveland; J. C. DICKINSON, Tampa, Fla.; IRA H. LOCKWOOD, Kansas City, Mo.

### Tuesday, June 10—9 a. m.

JOINT MEETING WITH SECTION ON MILITARY MEDICINE AND SECTION ON PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH IN ROOM 6, NAVY PIER

**Atomic Warfare Defense and the Navy.**

H. H. HAIGHT, Washington, D. C.

Discussion to be opened by H. S. ETTER, Washington, D. C.

**Pathologic Effects of Total Body Irradiation.**

ELBERT DECOURSEY, Washington, D. C.

Discussion on papers of Drs. Haight and DeCoursey to be opened by GERALD M. MCDONNEL, Washington, D. C.

**Diseases of the Chest Having an Occupational Origin: Industrial Medical Aspects.** FRANK PRINCI, Cincinnati.

***Diseases of the Chest Having an Occupational Origin: Radiologic Aspects.*** EUGENE P. PENDERGRASS, Philadelphia.

Discussion on papers of Drs. Princi and Pendergrass to be opened by OSCAR A. SANDER, Milwaukee.

***The Present Status of Mass Screening Technics for Chest:* Industrial Medical Aspects.**

O. MERTON DERRYBERRY, Chattanooga, Tenn.

**The Present Status of Mass Screening Technics for Chest: Radiologic Aspects.**

ARTHUR C. CHRISTIE, Washington, D. C.

Discussion on papers of Drs. Derryberry and Christie to be opened by LEO G. RIGLER, Minneapolis.

### Wednesday, June 11—9 a. m.

ELECTION OF OFFICERS

**Chairman's Address: Lymphosarcoma of the Gastrointestinal Tract.** IRA H. LOCKWOOD, Kansas City, Mo.

*Symposium on Roentgen Examination of the Gall Bladder and Jaundice*

**Roentgen Examination of the Gallbladder Without Opacification.**

CLYDE A. STEVENSON, Temple, Texas.

**Present Day Cholecystography.**

B. R. KIRKLIN and D. B. O'DONNELL, Rochester, Minn.

**Barium Study As an Aid in the Differential Diagnosis of Jaundice.**

RAYMOND C. BEELER and JOHN W. BEELER, Indianapolis.

**Preoperative and Postoperative Cholangiography.**

EVERETT L. PIRKEY, LAWRENCE A. DAVIS, and LAWRENCE A. PILLA, Louisville, Ky.

Discussion to be opened by EDWARD L. JENKINSON, Chicago; BRUCE C. LOCKWOOD, Detroit; ARTHUR H. JOISTAD JR., Muskegon, Mich., and JAMES C. DRYE, Louisville, Ky.

**The Reduction of Intussusception by Barium Enema.**

RUSSELL H. MORGAN, MARK RAVITCH and RALPH E. STURM, Baltimore.

Discussion to be opened by FRED J. HODGES, Ann Arbor, Mich.

### Thursday, June 12—9 a. m.

**Spondylolisthesis Studies.**
Lee A. Hadley, Syracuse, N. Y.
Discussion to be opened by Maurice B. Roche, St. Louis.

**Roentgen Therapy of Advanced Carcinoma With the Use of a Grid: Comparative Results With Other Methods: Some Considerations of the Physical Factors in Grid Therapy.**
Hirsch Marks, New York, and George Rudinger, Buffalo.
Discussion to be opened by Theodore J. Wachowski, Wheaton, Ill.

**The Present Status of the Scanning X-ray System.**
Robert J. Moon, Chicago.
Discussion to be opened by Paul C. Hodges, Chicago.

**The Role of Common Sense in Cancer Therapy.**
Franz J. Buschke, Seattle.
Discussion to be opened by Erich M. Uhlmann, Chicago.

**A Method for Measuring Cardiac and Peripheral Vascular Flow Utilizing Serum Albumin Labelled with Radioactive Iodine.**
H. L. Friedell, W. J. MacIntyre, W. D. Holden, and W. H. Pritchard, Cleveland.

**Detection of Concealed Thyroid Disease by Tracer Technic.**
Lawrence Reynolds, K. E. Corrigan, and H. S. Hayden, Detroit.

**A Five Year Experience With Radioactive Iodine in the Treatment of Hyperthyroidism.**
Dwight E. Clark, James Rule and David A. Cofrin, Chicago.
Discussion to be opened by Louis N. Katz, Chicago; Z. S. Gierlach, Louisville, Ky., and Wendell G. Scott, St. Louis.

## SECTION ON SURGERY, GENERAL AND ABDOMINAL

MEETS IN GRAND BALLROOM. HOTEL SHERATON

### OFFICERS OF SECTION

Chairman—I. Mims Gage, New Orleans.
Vice Chairman—Richard K. Gilchrist, Chicago.
Secretary—I. Ridgeway Trimble, Baltimore.
Executive Committee—Michael E. DeBakey, Houston, Texas. I. S. Ravdin, Philadelphia; I. Mims Gage, New Orleans.

### Tuesday, June 10—9 a. m.

**Treatment of Intra-Oral Tumors.**
James W. Hendrick, San Antonio, Texas, and Grant E. Ward, Baltimore.
Discussion to be opened by Danely P. Slaughter, Chicago, and John B. Erick, Rochester, Minn.

**Surgical Considerations of Diverticula of the Esophagus.**
Michael E. DeBakey, John Heaney and Oscar Creech, Houston, Texas.
Discussion to be opened by Frank H. Lahey, Boston, and Stuart W. Harrington, Rochester, Minn.

**The Diagnosis and Treatment of Hiatus Hernia of the Diaphragm.** Richard H. Sweet, Boston.
Discussion to be opened by William P. Chapman, Boston, and Conrad R. Lam, Detroit.

**William Stewart Halsted: An Appreciation on the Centenary of His Birth.** Alfred Blalock, Baltimore.
Discussion to be opened by Emile F. Holman, San Francisco, and James F. Mitchell, Washington, D. C.

**Surgical Lesions of the Adrenal Glands.**
James T. Priestley, Randall G. Sprague, and Walter F. Kvale, Rochester, Minn.
Discussion to be opened by Charles B. Huggins, Chicago, and Francis Lukens, Philadelphia.

**Inflammatory Lesions of the Colon Simulating Neoplasms.**
Charles D. Branch, Peoria, Ill.
Discussion to be opened by Charles W. Mayo, Rochester, Minn., and Richard K. Gilchrist, Chicago.

### Wednesday, June 11—9 a. m.

ELECTION OF OFFICERS

**Chairman's Address.** I. Mims Gage, New Orleans.

**Ligation of the Primary Hepatic Splenic and Left Gastric Arteries in the Treatment of Intrahepatic Portal Hypertension.**
William F. Rienhoff Jr., and Alan C. Woods Jr., Baltimore.
Discussion to be opened by I. S. Ravdin, Philadelphia; Philip Thorek, Chicago, and Arthur H. Blakemore, New York.

**The Hepatic, Cystic, and Retroduodenal Arteries and Their Relations to the Biliary Ducts.**
Nicholas A. Michels, Philadelphia.
Discussion to be opened by Warren H. Cole, Chicago, and I. S. Ravdin, Philadelphia.

**Surgical Correction of Lymphedema.**
Gerald H. Pratt, New York.
Discussion to be opened by Emile F. Holman, San Francisco, and Harris B. Shumacker Jr., Indianapolis.

**The Surgical Management of the Shoulder Girdle Syndromes, Hyperabduction, Costoclavicular, Cervical Rib, and Scalenus Anticus: A New Operative Procedure.**
Jere W. Lord Jr., New York.
Discussion to be opened by Howard C. Naffziger, San Francisco, and Harris B. Shumacker Jr., Indianapolis.

### Thursday, June 12—9 a. m.

**Spinal Anesthesia for Abdominal Surgery.**
Charles F. Hobelmann, Baltimore.
Discussion to be opened by George S. Hopkins, Topeka, Kan., and James E. Eckenhoff, Philadelphia.

**Duodenal Ulcer Treated by Subtotal Gastrection With and Without Vagotomy: A Five Year Comparative Study.**
Leonard J. Druckerman, Vernon A. Weinstein, Percy Klingenstein, and Ralph Colp, New York.
Discussion to be opened by Karl A. Meyer, Chicago, and Reginald H. Smithwick, Boston.

**The Billroth I and II Methods of Subtotal Gastrectomy for Duodenal Ulcer: A Clinical and Experimental Evaluation.**
Henry N. Harkins, Ralph Schlosser, Horace G. Moore, J. K. Stevenson, E. H. Storer, Lester R. Sauvage, E. J. Schmitz, Edmund A. Kanar, and H. H. Olson, Seattle.
Discussion to be opened by Alfred A. Strauss, Chicago, and John M. Waugh, Rochester, Minn.

**Gastric Resection in the Treatment of Upper Gastro-Intestinal Hemorrhage of Undetermined Etiology.**
L. Kraeer Ferguson and Donald R. Cooper, Philadelphia.
Discussion to be opened by I. Ridgeway Trimble, Baltimore.

**The Balloon Technic in the Cytologic Diagnosis of Gastric Cancer.**
William A. Cooper and George N. Papanicolaou, New York.
Discussion to be opened by Walter G. Maddock and Otto Saphir, Chicago.

**Carcinoma of the Stomach in a Large General Hospital.**
Frederick F. Boyce, New Orleans.
Discussion to be opened by Arthur W. Allen, Boston, and Waltman Walters, Rochester, Minn.

## SECTION ON UROLOGY

MEETS IN ROOM 1, NAVY PIER

### OFFICERS OF SECTION

Chairman—John R. Hand, Portland, Ore.

Vice Chairman—Rex E. Van Duzen, Dallas, Texas.

Secretary—Earl E. Ewert, Boston.

Executive Committee—Edward N. Cook, Rochester, Minn.; John Arthur Taylor, New York; John R. Hand, Portland, Ore.

### Tuesday, June 10—2 p. m.

**Interpretation of the Testicular Biopsy.**
Warren O. Nelson, Iowa City.

**The Treatment of Testis Tumors and Their Pathologic Characteristics.** Wyland F. Leadbetter, Boston.

**Plasmocytoma (Multiple Myeloma) of Testis: Report of Three Cases.** Myer M. Melicow, New York.

Discussion to be opened by Charles B. Huggins, Chicago; Reed M. Nesbit, Ann Arbor, Mich., and Norris J. Heckel, Chicago.

**Treatment and Prevention of Kidney Stones by Increasing the Protective Urinary Colloids with Hyaluronidase.**
Arthur J. Butt, Pensacola, Fla.; Ernest A. Hauser, Cambridge, Mass.; Joseph Seifter, Philadelphia, and Joseph Q. Perry, Pensacola, Fla.

**Prevention of Urinary Calculi in the Bedridden Patient.**
Edwin L. Prien, Brookline, Mass., and J. A. Carr, London, England.

**Management of Ureteral Calculi.**
W. E. Kittredge, New Orleans.

**A Critical Survey of the Management of Ureteral Calculi.**
E. Humber Burford, St. Louis.

Discussion to be opened by Michael G. O'Brien, Scranton, Pa.; James C. Sargent, Milwaukee, and Alf H. Gundersen, La Crosse, Wis.

### Wednesday, June 11—2 p. m.

ELECTION OF OFFICERS

**Chairman's Address.** John R. Hand, Portland, Ore.

**A New Concept of the Vesical Innervation: Its Relationship to the Bladder Management Following Abdomino-Perineal Proctosigmoidectomy.**
Lowrain E. McCrea, Philadelphia.

**Observation on the Effect of Banthine in Urological Disturbances.**
Jack Lapides and Austin I. Dodson Jr., Ann Arbor, Mich.

Discussion to be opened by H. Kiefer and William J. Baker, Chicago.

**Facts Concerning Uterosigmoidostomy.**
C. D. Creevy, Minneapolis.

**Massive Electrocoagulation of Deeply *Infiltrating* Bladder Tumors Combined with Ligation of the Vena Cava for Prevention of Pulmonary Embolism.**
Fred E. B. Foley and Edward J. Richardson Jr., St. Paul.

**Recto-Urethral Fistula.** Alexander Slavcoff, Harrisburg, Pa.

Discussion to be opened by Vincent J. O'Conor, Chicago; Charles C. Higgins, Cleveland, and Raymond G. Bunge, Iowa City.

### Thursday, June 12—2 p. m.

**Surgical Consideration of Vesical Neck Obstruction in Females.**
Edward M. Honke, Sioux City, Iowa.

**Urologic Problems in the Female.**
Thomas L. Pool, Rochester, Minn.

Discussion to be opened by James W. Merricks, Chicago, and James I. Farrell, Evanston, Ill.

**The Modern Treatment of Genitourinary Tuberculosis.**
John K. Lattimer, New York.

**Malacoplakia of the Bladder Compared to Generalized Sarcoidosis: Report of Additional Cases, Pathology, New Treatment.** Francis H. Redewill, San Francisco.

**Hematuria with Sickle Cell Disease.**
Francis G. Harrison, Philadelphia.

Discussion to be opened by Frederick A. Lloyd, Russell D. Herrold, and J. S. Grove, Chicago.

**Bilateral Simultaneous Retroperitoneal Pneumography.**
John Duff and Thomas A. Morrissey, New York.

**Delayed Cystograms: A Preliminary Report.**
Charles M. Stewart, Los Angeles.

Discussion to be opened by Edwin Davis, Omaha, and Charles G. Weller, Aurora, Ill.

**Pneumography as Applied to Urology.**
J. Sydney Ritter, New York.

## COLOR TELEVISION

A Color Television Program, originating in Wesley Memorial Hospital, Chicago, will be presented in the Scientific Exhibit on Navy Pier during the week of the session. The program is sponsored by the Smith, Kline and French Laboratories. The Local Subcommittee on Television is:

CO-CHAIRMEN

Warren H. Cole
Walter G. Maddock

MEMBERS

Edward L. Compere
George H. Gardner
Jerome Head
William A. Mann
Vincent J. O'Conor
Norman G. Parry
Paul S. Rhoads
George E. Shambaugh Jr.
Ralph M. Hueston

The color television program will cover the following subjects:

**I. Operations**

1. General Surgery (including operations on the stomach, colon, biliary tract, method of performing a biopsy on the breast, etc.)
2. Orthopedics
3. Urology
4. Obstetrics and Gynecology
5. Thoracic Surgery
6. Neurosurgery
7. Ophthalmology
8. Otolaryngology

**II. Demonstration of proper methods for examination of joints and the back.**

**III. Demonstration of proper examination of the breast with discussion of two cases of carcinoma.**

**IV. Orthopedic Clinic with demonstrations of patients having gross deformities, limps, curvature of the spine, etc.**

**V. Plastic Surgery Clinic dealing with orthopedic problems.**

1. Covering of extremity defects (over tibia) with extremity soft tissues (over tibia, Achilles Tendon, heel, etc.)
2. Formation of thumb from index or other fingers.

**VI. Dermatology Clinic.**

**VII. Neurology Clinic.**
Demonstrations of abnormal gaits an dother easily discernible signs.

**VIII. Electrolyte problems. Presentation of common conditions seen and how handled.**

# THE SCIENTIFIC EXHIBIT

The Scientific Exhibit will be located on Navy Pier in close proximity to other activities of the Session.

The Committee on Scientific Exhibit has authorized three special exhibits on fractures, fresh pathology, and resuscitation. The new methods of resuscitation will be demonstrated both in the exhibit hall and in the waters of Lake Michigan at the end of the pier.

Three exhibit symposiums will be presented on diabetes, overweight, and cardiovascular diseases. Question and answer conferences will be conducted continuously throughout the week on each of these subjects, in rooms adjacent to the exhibits.

The 20 sections of the Scientific Assembly have each arranged groups of exhibits dealing with the respective specialties of medicine. Emphasis is placed on the interest of the physician in general practice, however, rather than that of the specialist in each group.

The Scientific Exhibit will open at 9:00 a. m. on Monday, June 9, and will close at 12:00 noon on Friday, June 13. On the intervening days, the pier will be open from 8:30 a. m. to 6:00 p. m.

Admission to the Scientific Exhibit will be limited to persons wearing the membership badge or other official badge of the Convention. The public will not be admitted to the Scientific Exhibit.

Thomas G. Hull, Director, Scientific Exhibit.

## Special Exhibit on Fractures

The Special Exhibit on Fractures is continued again this year with the following committee in charge:

Frederick A. Jostes, St. Louis, chairman
Gordon M. Morrison, Boston
Ralph G. Carothers, Cincinnati
Kellogg Speed, Chicago, member emeritus

Continuous demonstrations will be conducted each morning and afternoon throughout the week on the following subjects:

***Fractures of the Spine***
***Fractures of the Wrist***
***Fractures of the Ankle***
***Fracture of the Elbow***
***Fracture of the Carpal Navicular***
***Fracture of the Shaft of the Humerus***

The demonstrations will stress elementary points in treatment based on the pathology of each type of fracture for the instruction of the physician in general practice. A pamphlet presenting the essential features will be available for distribution. A large group of competent surgeons will assist with the demonstrations.

## Special Exhibit on Fresh Pathology

The Section on Pathology and Physiology, with the cooperation of the Illinois Society of Pathologists, will present an exhibit of fresh pathological specimens. The committee in charge of the demonstrations is composed of the following pathologists:

George Milles, Chicago, chairman
Paul R. Cannon, Chicago
Marion C. Corrigan, Chicago
I. Davidsohn, Chicago
Harold A. Grimm, Chicago
James W. Henry, Park Ridge, Ill.
Edwin F. Hirsch, Chicago
William B. Wartman, Chicago
Hans Popper, Chicago

Assistance will be given by the various hospitals and medical schools in the Chicago area. Demonstrations will be conducted continuously throughout the week by a competent group of pathologists.

## Special Exhibit on Artificial Respiration

The Council on Physical Medicine and Rehabilitation and the American National Red Cross have cooperated to demonstrate a new method of artificial respiration called the back pressure-arm lift method. Many organizations interested in first aid and manual artificial respiration have approved the new back pressure-arm lift method.

This exhibit consists of charts, illustrations, working models, and demonstrations on live subjects. Continuously during the week, demonstrations and instruction will be given in the booth on the proper way of administering the back pressure-arm lift method of manual artificial respiration.

An additional attraction will be a demonstration of lifesaving rescue methods used throughout the world, given daily at 12:30 p. m. at the end of Navy Pier. Concurrently, several methods of rescue will be employed, as for example, a rowboat, canoe, buoy and ring torpedo, surfboard, and swimming rescues in the waters of Lake Michigan.

The following committee is in charge of the demonstrations:

Archer S. Gordon, Chicago, chairman
James H. Carnahan, Chicago
Ralph E. DeForest, Chicago
Frederic T. Jung, Chicago
Peter Karpovich, Springfield, Mass.
Adolph Kiefer, Chicago
Robert G. Nims, Philadelphia
Carl J. Potthoff, Washington, D. C.
Howard A. Carter, Chicago, coordinator

## Exhibit Symposium on Overweight, Nutrition, and Health with Question and Answer Conferences

The Exhibit Symposium on Overweight, Nutrition, and Health is presented with the cooperation of the American Medical Association, American Dietetic Association, Metropolitan Life Insurance Company, and United States Public Health Service.

The sponsoring committee is composed of the following physicians:

Louis I. Dublin, New York
James S. McLester, Birmingham, Ala.
Lester J. Palmer, Seattle
Howard F. Root, Boston
Stanley R. Truman, Oakland, Calif.
Russell M. Wilder, Washington, D. C.
Howard F. West, Los Angeles

The active committee in charge of the program is as follows:

Herbert H. Marks, New York
Arnold B. Kurlander, Washington, D. C.
Fredrick J. Stare, Boston
James R. Wilson, Chicago, chairman

### Weight Control—An Experiment in Group Therapy

Arnold B. Kurlander, A. L. Chapman, and Marjorie Grant Whiting, U. S. Public Health Service, Washington, D. C.

The exhibit, in a combination sound and sight device, explains the group therapy technique for losing weight. A large photomural is shown of a group of overweight women who are meeting with a doctor to discuss their difficulty in losing weight. A light flashes to indicate the speaker, and the voice is heard through individual earphones connected to the panel. The dialogue suggests that group therapy may be helpful in controlling weight.

**Nutritional Research and Medical Problems**

F. J. STARE, D. M. HEGSTED, G. V. MANN, R. P. GEYER, M. F. TRULSON, and J. MAYER, Harvard School of Public Health, Boston.

The broad role and importance of nutrition in several medical problems is pointed out. Special attention is devoted to current researches dealing with nutrition and atherosclerosis (ultra centrifuge data), fat emulsion for intravenous use, emulsion of Vitamin K, for dicumarol emergencies, and experimental studies in obesity.

**Influence of Overweight on Health and Disease**

DONALD B. ARMSTRONG, GEORGE M. WHEATLEY, and HERBERT H. MARKS, Metropolitan Life Insurance Company, New York.

The exhibit presents facts on mortality and morbidity among overweight persons, based on recent life insurance and clinical experience. The material includes (1) an up-to-date study of the mortality experience of the Metropolitan Life Insurance Company on persons limited to substandard insurance because of overweight; (2) the relative frequency and rate of development of heart disease, hypertension, diabetes, and other conditions in overweight persons; (3) data showing the influence of overweight on prognosis in various conditions; and (4) the favorable effects of weight reduction on health and longevity. The exhibit also presents the company's health educational program on weight control and the educational materials used that have been developed in association with the American Medical Association and the United States Public Health Service.

**The Adequate Low-Calorie Diet**

RUTH YAKEL, American Dietetic Association, Chicago.

The adequate low-calorie diet is presented in the form of food models and illustrations. The models show three sample daily meals. Additional information is given on variations of the low-calorie diet and the low-sodium, low-cholesterol, and diabetic diets.

**Fads and Fallacies for the Fat**

OLIVER FIELD, Bureau of Investigation, American Medical Association, Chicago.

The exhibit depicts a variety of proprietary medicines, "plans," and gadgets sold to the public as sure and easy means whereby weight can be controlled or reduced.

## Question and Answer Conference on Overweight, Nutrition, and Health

A Question and Answer Conference on Overweight, Nutrition, and Health will be conducted continuously throughout the week in an area adjacent to the exhibits. Competent leaders will discuss 10 different phases of the subject at half-hour intervals, and 10 minutes will be devoted to questions which are mailed in or come from the floor.

The program follows:

### MONDAY MORNING, JUNE 9

| | |
|---|---|
| 10:00 a. m. | **Introduction—"Losing to Win"—a motion picture.**<br>GEORGE M. WHEATLEY, New York. |
| 10:30 a. m. | **Overweight—Commonest Form of Malnutrition.**<br>CLIFFORD GASTINEAU, Rochester, Minn. |
| 11:00 a. m. | **Who is Overweight?**<br>FREDRICK J. STARE, Boston. |
| 11:30 a. m. | **Obesity—What About the Endocrines.**<br>ELMER L. SEVRINGHAUS, Nutley, N. J. |
| 12:00 noon | **Physiology of Appetite.**<br>JEAN MAYER, Boston. |
| 12:30 p. m. | **Why People Overeat.**<br>(Speaker to be announced.) |
| 1:00 p. m. | **How to Prescribe a Diet.**<br>WILLIAM H. OLMSTED, St. Louis. |

### MONDAY AFTERNOON, JUNE 9

| | |
|---|---|
| 2:00 p. m. | **Obesity and Diabetes.**<br>LESTER J. PALMER, Seattle. |
| 2:30 p. m. | **Obesity and Cardiovascular Disease.**<br>ERNEST E. IRONS, Chicago. |
| 3:00 p. m. | **Physical Medicine and Obesity.**<br>FRANK H. KRUSEN, Rochester, Minn. |
| 3:30 p. m. | **Obesity and Rehabilitation.**<br>HOWARD A. RUSK, New York. |
| 4:00 p. m. | **Spot Reducing and Reducing Gadgets.**<br>HOWARD A. CARTER, Chicago. |
| 4:30 p. m. | **What About Vitamins?**<br>HERBERT POLLACK, New York. |

### TUESDAY MORNING, JUNE 10

| | |
|---|---|
| 9:40 a. m. | **"Losing to Win"—a motion picture.** |
| 10:00 a. m. | **Recent Advances in Nutrition.**<br>ANTON J. CARLSON, Chicago. |
| 10:30 a. m. | **Obesity and the Endocrines.**<br>HUGO R. RONY, Chicago. |
| 11:00 a. m. | **The Obese Child.**<br>ALFRED E. FISCHER, New York. |
| 11:30 a. m. | **Dangers of Obesity in Later Life.**<br>EDWARD L. BORTZ, Philadelphia. |
| 12:00 noon | **Control of Weight in Pregnancy.**<br>ARTHUR B. HUNT, Rochester, Minn. |
| 12:30 p. m. | **Current Concepts of Nutrition in Pregnancy.**<br>BERTHA BURKE, Boston. |
| 1:00 p. m. | **Nutrition of the Surgical Patient.**<br>I. S. RAVDIN, Philadelphia. |
| 1:30 p. m. | ***Dietary Management of Peptic Ulcer.***<br>CLIFFORD J. BARBORKA, Chicago. |

### TUESDAY AFTERNOON, JUNE 10

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| 2:00 p. m. | **What is a Basic Diet?**<br>FREDRICK J. STARE, Boston. |
| 2:30 p. m. | ***Parenteral Nutrition.***<br>WILLIAM WADDELL, Boston. |
| 3:00 p. m. | **Adaptations of Normal Diets for Therapeutic Purposes.**<br>DOROTHEA TURNER and CLARA ZEMPEL, Chicago. |
| 3:30 p. m. | **Panel on the Treatment of Obesity.**<br>**Basic Principles**<br>NORMAN H. JOLLIFFE, New York<br>**Drugs**<br>ROBERT T. STORMONT, Chicago<br>**Psychotherapy**<br>STANLEY S. KANTER, Boston<br>**Exercise**<br>RALPH E. DEFOREST, Chicago<br>**Reducing Diets**<br>MARTHA F. TRULSON, Boston |

### WEDNESDAY MORNING, JUNE 11

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| 9:40 a. m. | **"Losing to Win"—a motion picture.** |
| 10:00 a. m. | **Overweight—Your Number One Health Problem.**<br>LOUIS I. DUBLIN, New York. |
| 10:30 a. m. | **How to Go About Prescribing a Diet.**<br>WALTER C. ALVAREZ, Chicago. |
| 11:00 a. m. | **Food Fads in Weight Reduction.**<br>MORRIS FISHBEIN, Chicago. |
| 11:30 a. m. | (Subject and Speaker to be Announced). |
| 12:00 noon | **High Fat—High Protein Diets for Weight Reduction.**<br>Panel Discussion. FREDRICK J. STARE, Boston, and others. |

12:30 p. m. **What About the Vitamins? Are Supplements Needed?**
(Speaker to be announced.)

1:00 p. m. **Weight Reduction Through Diet—a motion picture.**
Discussion by Margaret A. Ohlson, East Lansing, Mich.

### WEDNESDAY AFTERNOON, JUNE 11

2:00 p. m. **Panel on Overweight and Cardiovascular Disease.**
Rachmiel Levine, Chicago, Moderator.

3:00 p. m. **Panel on Cholesterol and Atherosclerosis.**
Irvine H. Page, Cleveland, Moderator.

4:00 p. m. **Panel on Low-Sodium Diets Including the Rice Diet.**
Irvine H. Page, Cleveland, Moderator.

5:00 p. m. **"Losing to Win"—a motion picture.**

### THURSDAY MORNING, JUNE 12

9:40 a. m. **"Losing to Win"—a motion picture.**

10:00 a. m. (Subject and speaker to be announced.)

10:30 a. m. **Recent Advances in Nutrition.**
George V. Mann, Boston.

11:00 a. m. **Nutrition and Liver Disease.**
Norman H. Jolliffe, New York.

11:30 a. m. **Some Problems of Potassium Metabolism.**
Paul R. Cannon, Chicago.

12:00 noon **Group Therapy in Obesity.**
Arnold B. Kurlander, Washington, D. C.

1:00 p. m. ***Community Program in Weight Control.***
George M. Wheatley, New York.

1:30 p. m. **"Losing to Win"—a motion picture.**

### THURSDAY AFTERNOON, JUNE 12

2:00 p. m. **Weight Reduction and Work Simplification in Cardiac Therapy.**
Margaret H. Austin, Chicago.

2:30 p. m. **Nutrition and the Anemias.**
Carl V. Moore, St. Louis.

3:00 p. m. ***Opportunities for Weight Reduction in Employee Groups.***
H. Harold Fellows, New York.

3:30 p. m. to 5:00 p. m. **The Diabetic Diet—A Joint Session with the American Diabetes Association.** Frank N. Allan, Boston, Howard F. Root, Boston, Lester J. Palmer, Seattle, D. M. Hegsted, Boston and Charlotte Ludwig, Chicago.

5:00 p. m. **"Losing to Win"—a motion picture.**

### FRIDAY MORNING, JUNE 13

9:40 a. m. **"Losing to Win"—a motion picture.**

10:00 a. m. **Nutrition and Health.**
(Speaker to be announced.)

10:30 a. m. **What About Cholesterol Today?**
D. M. Hegsted, Boston.

11:00 a. m. **The Overweight Executive.**
(Speaker to be announced.)

11:30 a. m. **Recent Advances in Nutrition.**
Martha F. Trulson, Boston.

## Exhibit Symposium on Cardiovascular Diseases with Question and Answer Conferences

The Exhibit Symposium on Cardiovascular Diseases is presented with the cooperation of the American, Illinois, and Chicago Heart Associations, with the following Committee in charge:

Louis N. Katz, Chicago, chairman
Richard Langendorf, Chicago, subchairman
Wright Adams, Chicago
Lyle Baker, Chicago
Geza de Takats, Chicago
George K. Fenn, Chicago
George A. Hellmuth, Chicago
Aldo Luisada, Chicago
Oglesby Paul, Chicago
Simon Rodbard, Chicago
George Wakerlin, Chicago

The following physicians are members of the National Advisory Committee:

Edgar V. Allen, Rochester, Minn.
E. Cowles Andrus, Baltimore
G. Lyman Duff, Montreal, Canada
James A. Greene, Houston, Texas
Robert E. Gross, Boston
Tinsley R. Harrison, Birmingham, Ala.
Hans H. Hecht, Salt Lake City
Alrick B. Hertzman, St. Louis
T. Duckett Jones, New York
Forest Kendall, New York
Robert L. King, Seattle
H. M. Marvin, New Haven
Hugh Montgomery, Philadelphia
Hugh Morgan, Nashville, Tenn.
Irvine H. Page, Cleveland
Myron Prinzmetal, Beverly Hills, Calif.
John J. Sampson, San Francisco
Howard B. Sprague, Boston
Marcy L. Sussman, Phoenix, Ariz.
C. J. Van Slyke, Bethesda, Md.
Irving S. Wright, New York

### Aids to the Professions in Cardiovascular Education

William J. Zukel, National Heart Institute, and C. J. Van Slyke, Heart Section, Division of Chronic Disease and Tuberculosis, U. S. Public Health Service, Washington, D. C.

The exhibit describes some of the Public Health Service heart disease activities and services which aid physicians and health workers in combatting the problem of heart disease.

### Correlation of Recent Concepts in Electrocardiography

G. A. Hellmuth, Allen H. Weiss, and A. G. Mulder, Stritch School of Medicine of Loyola University and Hektoen Institute for Medical Research, Chicago.

With the ever-expanding knowledge of electrocardiography, the underlying unity of such concepts as bipolar electrocardiography, unipolar electrocardiography, and spatial vectorcardiography is often obscured. The purpose of this exhibit is to illustrate in a simple manner, with use of models and charts, the interrelations between these aspects through their common electrophysiological basis. The demonstration represents the methods of unipolar electrocardiography, bipolar electrocardiography, and the recently developed forms of spatial vectorcardiography, so that the observer may better understand each of these as well as the electrophysiology of the heart. The exhibit will be centered about a model representing a QRS loop. From this model will be derived further models and panels illustrating each of the above mentioned aspects. (From the Section on Internal Medicine.)

### Studies in Spatial Vectorcardiography

GEORGE E. BURCH, J. A. ABILDSKOV and J. A. CRONVICH, *Tulane University of Louisiana School of Medicine, New Orleans.*

The exhibit consists of books describing principles of vectorcardiography, including concepts and applications in experimental and clinical cardiology. New data obtained as a result of research on man are included. Photographs, stereoscopic records, and wire models of normal and abnormal spatial vectorcardiograms are shown. General applications in research and clinical medicine will be presented with emphasis on experimental data obtained. (From the Section on Internal Medicine.)

### Physiological Basis of the Electrocardiogram

MANUEL GARDBERG, *Louisiana State University Medical School, New Orleans.*

The formation of the QRS complex of the electrocardiogram is explained by use of a series of models of the heart. Each model depicts a stage of ventricular depolarization beginning with the initial activation and proceeding to the completion of activation. The effect of position of the heart including rotation is presented. The effects of bundle branch block and infarction are also presented. (From the Section on Internal Medicine.)

### Visualization of the Coronary Arteries During Life

JAMES A. HELMSWORTH, JOHNSON MCGUIRE, BENJAMIN FELSON, and RALPH C. SCOTT, *Cincinnati General Hospital, Cincinnati.*

Roentgenographic visualization of the coronary arteries has been successfully obtained in living dogs and in humans by insertion of a catheter into the proximal ascending aorta via the radial artery, and injecting contrast media. The sites of previously ligated coronary artery branches have also been demonstrated in the experimental animals. The technique is described, and films showing coronary artery filling are presented. (From the Section on Internal Medicine.)

### Hypertensive Cardiovascular Disease. Methods of Study and Treatment

REGINALD H. SMITHWICK, ROBERT WILKINS, GEORGE LEVENE, GEORGE P. WHITELAW, DERA KINSEY, JESSE E. THOMPSON, and WILLIAM GREER, *Massachusetts Memorial Hospitals, Boston.*

The exhibit describes the methods of study and treatment of vpertension from medical and surgical viewpoint. Diets, drugs, pes of operation, and 5 to 10 year follow-up results of patients operated on for hypertension, including follow-up data on patients surgically treated for angina pectoris are shown. Renal biopsy data, chest films in relation to heart size, and electrocardiograms before and after operation are included. (From the Section on Surgery, General and Abdominal.)

### Cardiovascular Dynamics in Normal and Pathological States

SIMON RODBARD, *Michael Reese Hospital, Chicago.*

A model of the circulation which graphically illustrates cardiovascular hydrodynamics has been designed and used with success in teaching hemodynamics to undergraduate and graduate students of medicine, as well as in the analysis of problems in normal and abnormal cardiovascular hydrodynamics. The model demonstrates certain aspects of Starling's law of the heart and the effects of changes in peripheral resistance. It permits first-hand observation of various dynamic factors affecting the circulation. It is constructed so that the progressive effects of various lesions leading to congestive failure, auricular and ventricular dilatation, pulmonary edema, and other consequences can be observed directly. Heart sounds, pressure pulses, and the effects of valvular lesions and congenital disorders can be illustrated in terms of the effect on the entire circulation. (From the Section on Pathology and Physiology.)

### The Superior Vena Cava Compression Syndrome—Pathologic Physiology and Therapeutic Management

BERNARD ROSWIT, GUSTAVE KAPLAN, HAROLD G. JACOBSON, and JOSEPH GENNIS, *Veterans Administration Hospital, Bronx, N. Y.*

The exhibit deals with etiological factors, radiographic diagnosis and localization, dynamic changes in pathologic physiology, and therapeutic management of this complication. A review is included of experience with 22 critically ill patients with bronchogenic carcinoma and superior vena cava obstruction in whom a gratifying palliative response was achieved with a combination of roentgen therapy and nitrogen mustard. (From the Section on Radiology.)

### *Ballistocardiography in Practice—Nicotine Sensitivity, Myocarditis, and Bundle Branch Block*

HARRY MANDELBAUM and ROBERT A. MANDELBAUM, *Jewish Hospital of Brooklyn and Jewish Sanitarium and Hospital for Chronic Diseases, Brooklyn.*

A modification of the original Dock apparatus is demonstrated, enabling the physician to record accurate ballistocardiograms utilizing either a string or direct writing electrocardiograph. The Brown classification of degree of abnormality in the BCG is reviewed. 1. Studies in normal and cardiac smokers with the specific BCG patterns diagnostic of nicotine sensitivity are shown. The clinical importance of the smoking sensitivity BCG test is stressed. 2. Cases of myocarditis are presented, with serial BCG's in acute and recovery stage. 3. In the evaluation of the functional myocardial efficiency of patients with bundle branch block, the role of the BCG is described. (From the Section on Internal Medicine.)

### Functional Versus Organic Chest Pain—*Differentiation by Dihydroergocornine (DHO-180)*

ARTHUR M. MASTER, LEON PORDY, KENNETH CHESKY, CHARLES I. GARFIELD, SIDNEY STORCH, and BENJAMIN RICHMAN, *Mount Sinai Hospital, New York.*

Accurate diagnosis in cardiac disease is complicated by the fact that the electrocardiogram, at rest or after standard exercise, may be abnormal in functional cardiac disturbances as well as in true organic heart disease. The electrocardiographic alterations found in functional cases at rest or after exercise have been obviated following intravenous injection of dihydroergocornine (DHO-180), a sympatholytic agent. On the other hand, cardiographic abnormalities in organic heart disease remain unchange after administration of DHO-180. With few exceptions, as show by follow-up studies of over 300 cases, dihydroergocornin (DHO-180) has been found valuable in the differential diagnos of functional heart disturbance and organic heart disease. (Fro the Section on Internal Medicine.)

### Mitral Commissurotomy—Evaluation and Results

THOMAS J. E. O'NEILL, ROBERT P. GLOVER, O. HENRY JA TON, and HARRY GOLDBERG, Philadelphia.

The operation of commissurotomy for mitral stenosis has be employed for the past four years. The indications for its use, af a period of trial and error, can now be clearly defined. Det of its exacting technique in an experience of over 400 cases h crystallized and are briefly presented. The immediate preope tive and postoperative management of patients presenting th selves for surgical consideration is outlined. Physiological d as obtained by cardiac catheterization before and after surg at varying intervals are available. The present status of e case is accurately tabulated, as are the causes of our mort (under 10%). The salient features in all the above categories depicted by photographs, charts, drawings, and roentgenogr (From the Section on Diseases of the Chest.)

### Experimental Arteriovenous Fistulas—Physiologic and Anatomic Effect on the Vascular System

D. C. ELKIN, NATHANIEL E. ADAMSON, EDWARD L. ZEGA, JAMES DRENNAN LOWELL, and RONALD J. MACKENZIE, Emory University Hospital, Emory University, Ga.

The exhibit is based on studies of the anatomic and physiologic changes caused by experimentally produced arteriovenous fistulas in dogs. It includes: (1) diagrams of four types of arteriovenous fistulas, including transpositions of arterial and venous systems between extremities, produced in the femoral circulation; (2) charts of plethysmographic, thermocouple, and direct blood pressure studies of the affected limbs; (3) imbedded vinylite® corrosion specimens of normal and modified vascular trees. (From the Section on Surgery, General and Abdominal.)

### An Experimental Study of the Etiology and Pathogenesis of Arterial Disease

L. L. WATERS, G. I. DESUTO-NAGY, and W. B. MCALLISTER, Yale University School of Medicine, New Haven, Conn.

This exhibit shows (1) the relation of injury, including hypertension, to the pathogenesis of arterial lesions; (2) the effect of altering lipid metabolism on the arterial lesion produced by injury; and (2) the correlation of etiological and pathogenetic factors in the experimental arterial disease with similar factors in arterial disease in man. (From the Section on Pathology and Physiology.)

### The Heart Association Helps the Physician

LOUIS N. KATZ, American Heart Association, New York, V. THOMAS AUSTIN, Illinois Heart Association, Springfield, and GEORGE K. FENN, Chicago Heart Association, Chicago.

The exhibit is a composite of National, State and local Heart Association activity. It presents a visual summary, illustrating highlights of the achievements of the Scientific Council of the American Heart Association, progress of the Association's research support program; professional education and publications of the American Heart Association, and some program accomplishments of the Illinois Heart Association and Chicago Heart Association.

### The Surgical Correction of Mitral Stenosis

DWIGHT E. HARKEN, LAURENCE B. ELLIS, LEWIS DEXTER, ROBERT E. FARRAND, JAMES F. DICKSON, and HARRISSON BLACK, The Peter Bent Brigham and Boston City Hospitals, Boston.

The exhibit covers the surgical correction of mitral stenosis. It includes the pathology of mitral stenosis, a diagrammatic representation of the mechanics of surgical relief, the actual operative procedure, and, lastly, the physiological dynamics that play a part in mitral stenosis, with particular reference to cardiac catheterization studies, pulmonary arteriolar resistance, and the calculation of the size of the mitral valve orifice. Results from preoperative and postoperative studies are shown. (From the Section on Internal Medicine.)

### Group Teaching of Heart Sounds, Murmurs, and Arrhythmias by Endless Loop Tape Recording

GEORGE D. GECKELER, WILLIAM LIKOFF and DANIEL MASON, Hahnemann Medical College and Hospital, Philadelphia.

The usefulness of endless loops of tape in teaching cardiac auscultation will be demonstrated. These will be broadcast in a room at specified intervals throughout the week. Eight to 12 different types of abnormal heart sounds, murmurs, and arrhythmias will be demonstrated at each session, with heart rates reduced and murmurs separated from their sounds; these are then reassociated, and it is shown that there is no alteration in their quality by this reduction of rate. Patients will be used for comparison with illustrations on tape. Demonstrations will be given daily at 9: 30, 10: 30 and 11: 30 a. m. and 2: 00, 3: 00 and 4: 00 p. m.

### Teaching of Cardiac Auscultation by Tape Recording

J. SCOTT BUTTERWORTH, MAURICE R. CHASSIN, ROBERT MCGRATH, EDMUND REPPERT, CHARLES A. POINDEXTER, and C. E. PETERSON, New York University Postgraduate Medical School, New York.

The exhibit consists of three tape recorders, each with an educational electron cardioscope for visualizing the cardiac sounds as they are heard. Chairs in front of each group of instruments will be equipped with individual electronic stethoscopes. Demonstration tapes will be used on each instrument to illustrate various types of auscultatory findings starting with normal sounds and progressing to rheumatic valvular disease and congenital lesions.

## Question and Answer Conference on Cardiovascular Diseases

A Question and Answer Conference on Cardiovascular Diseases will be conducted continuously throughout the week in an area adjacent to the exhibits. Following is the tentative program:

### MONDAY MORNING, JUNE 9

STANLEY GIBSON, Chicago, Chairman

9:00 a. m. **Diagnosis of Congenital Heart Disease.** M. J. Shapiro, Minneapolis, Benjamin M. Gasul and J. G. Schlichter, Chicago.

10:00 a. m. **Diagnosis of Rheumatic Fever and Rheumatic Heart Disease.** T. Duckett Jones, Boston, Benjamin M. Kagan and Hugh McCulloch, Chicago

11:00 a. m. **Treatment and Prevention of Rheumatic Heart Disease.** T. Duckett Jones and B. F. Massell, Boston and Albert Dorfman, Chicago.

12:00 noon **Recognition and Treatment of Subacute Bacterial Endocarditis.** T. H. Hunter, St. Louis and H. Dowling and Walter S. Priest, Chicago.

### MONDAY AFTERNOON, JUNE 9

GEZA DE TAKATS, Chicago, Chairman

1:00 p. m. **Management of Peripheral Vascular Disease.** Edgar V. Allen, Rochester, Minn., and D. I. Abramson and Samuel Perlow, Chicago.

2:00 p. m. **Surgical Treatment of Valvular Deformities.** Charles P. Bailey, Philadelphia, and Egbert H. Fell and Ormand C. Julian, Chicago.

3:00 p. m. **Varicose Veins and Their Complications.** Norman E. Freeman, San Francisco, and L. M. Zimmerman, Chicago.

4:00 p. m. **What is New in Thromboembolism?** Nelson W. Barker, Rochester, Minn., Irving S. Wright, New York, John H. Olwin and William B. Wartman, Chicago.

### TUESDAY MORNING, JUNE 10

ALDO LUISADA, Chicago, Chairman

9:00 a. m. **Management of Congenital Heart Disease.** R. J. Bing, Birmingham, Ala., Robert E. Gross, Boston, S. A. Mackler and Willis J. Potts, Chicago.

10:00 a. m. **The Evaluation of Cardiac Murmurs.** W. C. Buchbinder and H. W. Elghammer, Chicago.

11:00 a. m. **What Is New in Pulmonary Heart Disease?** D. W. Richards, New York, and Irving Mack and G. Snider, Chicago.

12:00 noon **What Is New in Collagen Diseases?** Walter Bauer, Boston, and S. H. Armstrong and Matthew Taubenhaus, Chicago.

### TUESDAY AFTERNOON, JUNE 10

LYLE BAKER, Chicago, Chairman

1:00 p. m. **X-Ray and Fluoroscopy of the Heart.** L. G. Rigler, Minneapolis, Nathan M. Grossman, Milwaukee, Edward G. Warnick and Harvey White, Chicago.

2:00 p. m. **What Is New in Heart Failure?** Smith Freeman and Harry F. Weisberg, Chicago.

3:00 p. m. **Diagnosis and Management of Recent Myocardial Infarction.** Peter Gaberman and R. P. Gilbert, Chicago.

4:00 p. m. **What Is New in Pericarditis?** Emile F. Holman, San Francisco, William A. Brams and Howard Wakefield, Chicago.

### WEDNESDAY MORNING, JUNE 11

GEORGE K. FENN, Chicago, Chairman

9:00 a. m. **Obesity and Heart Disease.** Rachmiel Levine and T. R. Van Dellen, Chicago.

10:00 a. m. **The Diagnosis and Treatment of Congestive Heart Failure.** George E. Burch, New Orleans, and Thomas J. Coogan and E. G. McEwen, Chicago.

11:00 a. m. **Diagnosis and Management of Angina Pectoris.** H. L. Blumgart, Boston, A. M. Master, New York, Frank B. Kelly and Don C. Sutton, Chicago.

12:00 noon **The Future of Patients with Rheumatic Heart Disease.** Albert J. Simon, Chicago.

### WEDNESDAY AFTERNOON, JUNE 11

GEORGE A. HELLMUTH, Chicago, Chairman

1:00 p. m. **Newer Aspects of Treatment of Syphilitic Cardiovascular Disease.** Robert B. Logue, Atlanta, Ga., and Chauncey C. Maher, Chicago.

2:00 p. m. **Diagnosis and Management of Cardiac Emergencies.** H. M. Korns, Iowa City, and E. F. Foley and W. A. Thomas, Chicago.

3:00 p. m. **Electrocardiography for the General Practitioner.** J. Scott Butterworth, New York, Hans H. Hecht, Salt Lake City, Utah, Louis N. Katz and Allen H. Weiss, Chicago.

4:00 p. m. **What Is New in the Therapy of Cardiac Arrhythmias?** Richard Langendorf and A. Pick, Chicago.

### THURSDAY MORNING, JUNE 12

GEORGE WAKERLIN, Chicago, Chairman

9:00 a. m. **What Is New in Hypertension?** Robert W. Wilkins, Boston, and T. N. Pullman and Simon Rodbard, Chicago.

10:00 a. m. **The Kidney in Cardiovascular Disease.** S. E. Bradley, New York, and Richard Sternheimer, Chicago.

11:00 a. m. **The Heart and Pregnancy.** Julius Jensen, St. Louis, and Philip A. Daly, Chicago.

12:00 noon **Apoplexy and What Can Be Done About It.** George M. Hass and L. H. Sloan, Chicago.

### THURSDAY AFTERNOON, JUNE 12

OGLESBY PAUL, Chicago, Chairman

1:00 p. m. **Cardiac Patients as Surgical Risks.** Edward S. Organ, Durham, N. C., and M. W. Lev and W. O. McQuiston, Chicago.

2:00 p. m. **Neurocirculatory Asthenia and Anxiety States of the Cardiovascular System.** Edward Weiss, Philadelphia.

3:00 p. m. **The Bedside Diagnosis of Cardiac Arrhythmias.** P. S. Barker, Ann Arbor, Mich., A. C. Ernstene, Cleveland, and J. S. Golden and Clayton J. Lundy, Chicago.

4:00 p. m. **The Rehabilitation of the Cardiac Patient.** Harold Feil, Cleveland, and J. A. Walsh and Louis B. Newman, Chicago.

### FRIDAY MORNING, JUNE 13

WRIGHT R. ADAMS, Chicago, Chairman

9:00 a. m. **What Is New in Arteriosclerosis?** J. W. Gofman, Berkeley, Calif., R. G. Gould, Los Alamos, N. M., and J. Stamler, Chicago.

10:00 a. m. **Outlook for Patients with Myocardial Infarction.** N. C. Gilbert and Sidney Strauss, Chicago.

11:00 a. m. **Heart Disease of Questionable Etiology.** (Speaker to Come.)

## Exhibit Symposium on Diabetes with Question and Answer Conferences

The Exhibit Symposium on Diabetes is presented with the cooperation of the American Diabetes Association and the George F. Baker Clinic, New England Deaconess Hospital, Boston, under the chairmanship of Dr. Howard F. Root, Boston.

### Look for Diabetes. You Will Find It.

HUGH L. C. WILKERSON, Diabetes Section and MALCOLM J. FORD, Program Development Branch, U. S. Public Health Service, Washington, D. C.

The exhibit indicates pictorially and statistically that diabetes can be found in community programs, in industry, in physicians' offices, and in hospitals. The Wilkerson-Heftmann test is graphically illustrated. It is shown that diabetes is to be found oftener among relatives of diabetic patients, among obese persons, and among persons over 40.

### Vascular Complications of Diabetes

HENRY B. MULHOLLAND, Charlottesville, Va., and ARTHUR R. COLWELL, Chicago, American Diabetes Association, New York.

The exhibit shows a sketch of a human being, indicating the location of various vascular complications of diabetes. Colored photographs and roentgenograms show both the normal and the pathological conditions found in vascular complications of the eyes (retinitis and retinitis proliferans), heart, veins, kidneys (Kimmelstiel-Wilson syndrome), and feet (ulcer and gangrene). The possible causative precipitating factors in vascular complications of diabetes are presented, as well as the methods of avoiding these vascular complications.

### Rural Diabetic Detection

WAYNE GRIFFITH and ROBERT L. RICHARDS, Chester, Vt.

The exhibit depicts the ramifications of a rural diabetic detection program, including (1) diabetic detection survey conducted in 1948; (2) favorable reaction of state medical society to paper on results; (3) series of diabetic nutrition lectures; (4) organizing of Chester Diabetic Club and its work; (5) health fair and how this was organized and carried out; (6) self-testing program that has been organized and now being done by home demonstration groups in state. It is also shown how small medical groups in rural areas can head up health education programs.

### Clinical and Pathological Study of Diabetic Retinopathy

JONAS S. FRIEDENWALD and BERNARD BECKER, Johns Hopkins Hospital, Baltimore, and A. E. MAUMANEE, Stanford University School of Medicine, San Francisco.

The exhibit consists of color photographs and drawings of the eye grounds of diabetic patients showing the characteristic features of the retinopathy and of its progress through various stages. Photomicrographs of the retinal vessels are shown. The most characteristic lesions are capillary aneurysms, many of which show hyalinization of their walls. The relation of the retinal changes to lesions found in the kidneys and other organs of the same cases are presented.

### Treatment of Diabetes Mellitus

Howard F. Root, Elliott P. Joslin, Priscilla White, Alexander Marble, Allan Joslin, Robert Bradley, and Clifford C. Franseen, Boston.

The treatment of diabetes with diet and insulin for the prevention of the degenerative sequelae is outlined; treatment of coma, pregnancy, surgical lesions of feet, and neuropathy is emphasized; new data on the incidence of diabetes are given.

### Modification of a New Rapid Blood Sugar Method

E. A. Haunz and M. H. Reisdorf, Grand Forks Clinic, Grand Forks, N. D.

This is a modification of the Wilkerson-Heftmann blood sugar screening test. The entire process is mechanized, except for pipetting given quantities of whole venous blood. A series of test tubes, each of which contains a measured quantity of blood mixed with 5 cc. of water are automatically processed for individual interval levels. Reagents are delivered, and critically-timed heating elements execute the chemical reactions while the specimens pass through the complete cycle of the machine. Results are interpreted by simply observing the point of change from a blue color to a colorless solution in the series of test tubes. By this method, blood sugar values can be estimated reliably at intervals of 50 mg. per cent or less. Minimal technical skill is required. Five or six interval levels can be processed in 6 to 10 minutes. The method is recommended for management of diabetic coma cases, routine blood sugars, and in a limited sense for glucose tolerance tests (to exclude diabetes). The exhibitors are in attendance to demonstrate the method and visitors are invited to have samples of their own blood processed.

## Question and Answer Conference on Diabetes

A series of diabetes conferences with opportunity for questions and answers will be conducted in a room adjacent to the exhibits. Under the chairmanship of Dr. Howard F. Root, Boston, a group of speakers from the George F. Baker Clinic, New England Deaconess Hospital, and the American Diabetes Association will present 30 minute talks dealing mainly with the problem of the control of diabetes in its many aspects.

The program follows:

### MONDAY, JUNE 9

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|---|---|
| 10:00 a. m. | **Treatment of Diabetic Coma.** Howard F. Root, Boston. |
| 10:30 a. m. | **Fat Particles in the Blood of the Diabetic.** Joseph H. Barach, Pittsburgh. |
| 11:00 a. m. | **Overproduction and Underutilization in Diabetes.** Herman O. Mosenthal, New York. |
| 11:30 a. m. | **Diabetes Today.** Elliott P. Joslin, Boston. |
| 12:00 noon | **Pregnancy in the Diabetic.** Priscilla White, Boston. |
| 12:30 p. m. | **The Isocaloric Diet in Treatment.** George E. Anderson, Brooklyn, N. Y. |
| 1:00 p. m. | **Practical Advice to the Patient.** Herbert Pollack, New York. |
| 1:30 p. m. | **Diagnosis of Glycosuria and Diabetes.** Alexander Marble, Boston. |
| 2:00 p. m. | **Management of the Diabetic Child.** Robert L. Jackson, Iowa City, Iowa. |
| 2:30 p. m. | **Diet and NPH Insulin in General Practice.** Barnett Greenhouse, New Haven, Conn. |
| 3:00 p. m. | **Hemochromatosis.** Alexander Marble, Boston. |
| 3:30 p. m. | **Diabetic Acidosis.** Joseph H. Crampton, Seattle. |
| 4:00 p. m. | **Instruction of the Patient.** Hugh L. C. Wilkerson, Boston. |

### TUESDAY, JUNE 10

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|---|---|
| 10:00 a. m. | **Hypoglycemia.** Frank N. Allan, Boston. |
| 10:30 a. m. | **Diabetic Ketoacidosis.** Cecil Striker, Cincinnati. |
| 11:00 a. m. | **Various Insulins.** (Speaker to be announced). |
| 11:30 a. m. | **Diabetic Children and Their Later Lives.** Priscilla White, Boston. |
| 12:00 noon | **Psychiatric Evaluation of the Adolescent Diabetic.** W. M. Sheppe, Jr., Charlottesville, Va. |
| 12:30 p. m. | **Control of Diabetic Complications.** Howard F. Root, Boston. |
| 1:00 p. m. | **Neuritis and Diabetes.** Thomas P. Sharkey, Dayton, Ohio. |
| 1:30 p. m. | **Medical Management of the Surgical Diabetic.** Alexander Marble, Boston. |
| 2:00 p. m. | **Distribution of the Diabetic Diet.** Edwin L. Rippy, Dallas, Texas. |
| 2:30 p. m. | **Education of the Diabetic Patient.** Blair Holcomb, Portland, Ore. |
| 3:00 p. m. | **The Use of Insulin Mixtures in Young Diabetics.** E. Paul Sheridan, Denver. |
| 3:30 p. m. | **Retinitis Proliferans and the Diabetic Triopathy.** Howard F. Root, Boston. |
| 4:00 p. m. | **Diabetes in Children.** George F. Schmitt, Miami, Fla. |

### WEDNESDAY, JUNE 11

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| 10:00 a. m. | **Treatment with Diet and Insulin.** Alexander Marble, Boston. |
| 10:30 a. m. | **Vascular Disease and Diabetes.** Henry T. Ricketts, Chicago. |
| 11:00 a. m. | **Surgical Complications of Lower Extremities.** Frederick W. Williams, New York. |
| 11:30 a. m. | **Diabetic Coma.** Howard F. Root, Boston. |
| 12:00 noon | **Various Types of Insulin in Special Cases.** William R. Kirtley, Indianapolis. |
| 12:30 p. m. | **Pregnancy.** Priscilla White, Boston. |
| 1:00 p. m. | **Brittle Diabetes.** Henry B. Mulholland, Charlottesville, Va. |
| 1:30 p. m. | **Care of Diabetic Feet.** William H. Olmsted, St. Louis. |
| 2:00 p. m. | **Diabetic Children and Diabetic Camps.** Lester J. Palmer, Seattle. |
| 2:30 p. m. | **Islet Cell Tumors of the Pancreas.** Alexander Marble, Boston. |
| 3:00 p. m. | **Renal Complications, Treatment and Prevention.** Charles W. Styron, Raleigh, N. C. |
| 3:30 p. m. | **Diet Relationships to Various Insulins.** Brendon P. Phibbs, Chicago. |
| 4:00 p. m. | **Insulin Timing.** Donald I. Bell, Evanston. |

### THURSDAY, JUNE 12

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| 10:00 a. m. | **Dietary Management of Diabetes.** Brendon P. Phibbs, Chicago. |
| 10:30 a. m. | **Insulins—Use and Abuse.** Donald I. Bell, Evanston. |
| 11:00 a. m. | **Management of Tuberculous Diabetics.** Chester Coggeshall, Chicago. |
| 11:30 a. m. | **Office Management of Diabetes.** Jerome T. Paul, Chicago. |
| 12:00 noon | **Treatment of Diabetic Acidosis.** James B. Hurd, Evanston. |
| 12:30 p. m. | **Diagnosis and Treatment of Diabetic Acidosis in Children.** Alvah L. Newcomb, Chicago. |
| 1:00 p. m. | **Management of the Surgical Diabetic.** Chester Coggeshall, Chicago. |
| 1:30 p. m. | **Management of Infants of Diabetic Mothers.** Alvah L. Newcomb, Chicago. |

2:00 p. m. **Renal Complications of Diabetes.** JEROME T. PAUL, Chicago.

2:30 p. m. **Relationships of Carbohydrate Metabolism to Adrenal Cortex.** HARLEY E. CLUXTON, Chicago.

3:00 p. m. **Diagnosis of Diabetes.** EUGENE J. RANKE, Chicago.

3:30 p. m. to 5:00 p. m. **Joint Session with Group on Overweight, Nutrition and Health. The Diabetic Diet.** FRANK N. ALLAN, Boston, HOWARD F. ROOT, Boston, LESTER J. PALMER, Seattle, D. M. HEGSTED, Boston, and CHARLOTTE LUDWIG, Chicago.

### FRIDAY, JUNE 13

10:00 a. m. (Subject and Speaker to be Announced).

10:30 a. m. (Subject and Speaker to be Announced).

## SECTION EXHIBITS

Each of the 20 sections of the Scientific Assembly has arranged a group of exhibits dealing with the various branches of medicine.

### Section on Anesthesiology

The representative to the Scientific Exhibit from the Section on Anesthesiology is SCOTT M. SMITH, Salt Lake City.

**Continuous Measurement of $CO_2$ Concentrations During Anesthesia**

JAMES O. ELAM, RAYMOND H. TEN PAS, ELWYN S. BROWN, and DOUGLAS W. EASTWOOD, Washington University School of Medicine and Barnes Hospital, St. Louis.

An analyzer has been used to study the factors influencing the respired $CO_2$ concentrations during inhalation anesthesia in man. The effects of inadequate $CO_2$ absorption by soda lime and of various rates of pulmonary ventrilation have been investigated during surgical anesthesia with the commonly employed inhalation anesthetic agents.

**Mobile Anesthesia Unit for Field Use**

LIEUT. COL. FRED C. DYE, USAF (MC), Sampson Air Force Base, Geneva, N. Y.

This exhibit presents a very compact, highly mobile anesthesia machine specially adaptable for field use. The unit can be air dropped or packed with portable surgical kits. Its use is demonstrated.

**Accidents and Complications of Local Anesthesia**

JOHN ADRIANI and JOHN PARMLEY, Louisiana State University Medical School and Charity Hospital, New Orleans.

The exhibit depicts by means of drawings, photographs, and posters, accidents resulting from the use of local anesthetic drugs. Emphasis placed upon error in technique leading to accidents, the recognition and differentiation of various types of reactions due to local anesthetic drugs, and their method of treatment and prevention. The complications encountered in attempting the commonly used nerve blocks and their differentiation from reactions due to the drugs are also shown.

**Sciatic and Femoral Nerve Block**

DANIEL C. MOORE, Mason Clinic, Seattle, Wash., and JOHN J. BONICA, Tacoma General Hospital, Tacoma, Wash.

The technique of producing adequate sciatic and femoral nerve blocks are demonstrated by drawings and photographs. Statistics showing its use in over 700 cases are presented and the advantages, disadvantages, indications and contraindications pointed out.

**Respiratory Effects of Anesthesia**

JAY JACOBY, Ohio State University College of Medicine, Columbus.

This exhibit presents tracings of respiratory patterns obtained during various types of anesthesia. Explanations and comments are offered regarding the circumstances of each tracing. Some generalizations are made regarding the importance of respiratory changes during clinical anesthesia.

**Factors Influencing the Assimilation, Distribution and Elimination of Inhalation Anesthetic Agents—An Analogy**

ALBERT FAULCONER and RAYMOND F. COURTIN, Mayo Clinic, Rochester, Minn.

This exhibit is a simple electrical network mounted in a manner designed to emphasize the analogous situation occurring in the body concerning the transport, distribution, and elimination of inhalation anesthetic agents. It consists of a series of five condensers whose capacities may be selected for the purpose of the demonstration and charged through an intermittently closing switch operated by an electronic circuit simulating respiration. It is designed to show that the condensers fill at varying rates just as do certain tissues and elements of the body during the respiration of anesthetic gas mixtures. The state of filling of the condensers is represented in the exhibit in a graphic manner.

**Cardiac Asystole**

HENRY S. RUTH, MARY L. BUCKLEY, and KENNETH K. KEOWN, Hahnemann Medical College and Hospital, Philadelphia.

Charts, photographs, and drawings show the causes of cardiac asystole. Treatment of this condition is explained according to each of the various etiological factors, including the use of drugs with the method of their administration, mechanical defibrillators, mechanical stimulators, and other types of management.

**Blood Volume Determinations as a Guide to Intravenous Therapy Experiences of a General Hospital**

ROBERT TENNANT and CHARLES M. BARBOUR, Hartford Hospital, Hartford, Conn.

Blood volume determinations, employing the Evan's blue (T1824) dye method, have been used to guide intravenous therapy in 1,000 patients. The findings emphasize the failure of determinations of values of the hematocrit, percentage of hemoglobin or erythrocyte counts (all measures of concentration) to indicate the actual total reductions of plasma or red cell volumes frequently present. The exhibit depicts the findings of blood volume determinations in acute blood loss, chronic wasting diseases (chronic shock), compensated blood loss, and polycythemia. The importance of adequate preparation of patients prior to administration of an anesthetic and performance of surgical procedures is shown as a series of patients in whom these situations were encountered. Emphasis is placed upon the significance of changes in blood volume in patients with malignant disease, particularly that of the gastrointestinal tract. Striking changes are found in the group having carcinoma of the stomach and colon. Twenty per cent of these patients reveal deficits of 500 cc. or more of blood, even though values of the hematocrit were 40 or greater.

**Muscle Relaxants—Chemistry, Pharmacology, and Their Use in Anesthesiology**

FRANCIS F. FOLDES, THEODORE S. MACHAJ, ROBERT D. HUNT, PHIL L. CHAPMAN, and PEARL G. MCNALL, Mercy Hospital, Pittsburgh.

The exhibit presents the chemistry, pharmacology and clinical application of the muscle relaxants with special emphasis on the controllability of their action and their indications and contraindications on the basis of their effect on the autonomic nervous system and their unwanted side-effects.

### Prolonged Relief of Episiotomy Pain

BERNARD E. CAPPE and IRVING M. PALLIN, Jewish Hospital of Brooklyn, Brooklyn, N. Y.

Episiotomy is the most frequently performed obstetric surgical procedure. It is also one of the commonest causes for local postpartum postoperative distress. A new type of local anesthesia has been developed which has been found clinically to produce a high degree of pain control. This type of anesthesia has been applied to local infiltration of the site of the episiotomy and has produced prolonged relief of pain.

### N-Allyl-Normorphine—An Antagonist to Opiates

JAMES E. ECKENHOFF, GEORGE L. HOFFMAN, ROBERT D. DRIPPS, and LONNIE W. FUNDERBURG, University of Pennsylvania School of Medicine, Philadelphia.

Data depicting the effectiveness of a relatively new opiate antagonist, N-allyl-normorphine, are presented. These data have been collected from a series of over 1,000 obstetrical patients who have received either normorphine or a control injection of normal saline, 4 to 10 minutes prior to delivery. Additional data are presented showing the effectiveness of the drug in instituting respiration in apnoeic neonatal infants.

## Section on Dermatology and Syphilology

The representative to the Scientific Exhibit from the Section on Dermatology and Syphilology is JAMES R. WEBSTER, Chicago.

### Pathogenesis and Physiology of Microsporon Audouini Infection of the Hair

HARRY M. ROBINSON JR., FRANK H. J. FIGGE, and EUGENE S. BERESTON, University of Maryland School of Medicine, Baltimore.

Cultural studies on the behavior of the organism in artificial media and demonstration of inhibitor substances are presented. Charts showing studies on the pathology of Microsporon Audouini infection of the hair as well as a theory of the mode of infection are demonstrated. By the use of the spectrophotometer, the chemical composition of the fluorescent material produced by exposure to the Wood light has been determined. The exhibit also contains studies on comparative fluorescence and the chemical behavior of the fluorescent material.

### Pigment Cell Neoplasms—Cytology, Pathology, Biochemistry

SAMUEL W. BECKER, THOMAS H. FITZPATRICK, and HAMILTON MONTGOMERY, Mayo Foundation for Medical Education and Research, Rochester, Minn.

The exhibit presents (1) cytology of the normal pigment cells, showing that the dendritic cell (melanodendrocyte) is the only pigment-forming cell in the epidermis; (2) histopathological features of lentigo, junction and dermal nevi, blue nevi, including the cellular type, which may be confused with malignant melanoma the nonpigmented often being confused with other grade IV neoplasms, and finally histological differentiation of other pigment cell neoplasms, such as verruca senilis and pigmented basal cell epithelioma; (3) biochemistry of pigment cell neoplasms, emphasizing the value of tyrosinase reaction and diagnosis of nonpigmented melanomas, biochemical charts illustrating different rates of oxygen uptake for nevi and malignant melanomas, in vitro production of melanomas and nonmelanotic melanomas, and the use of histochemical tyrosinase reaction in differentiating amelanotic melanomas from other grade IV neoplasms.

### Geriatric Dermatologic Practice

MELVIN L. GRAIS, University of Minnesota Medical School, Minneapolis, Minn.

This exhibit shows the common dermatologic conditions and problems encountered in older persons and the practical methods of handling these. Typical case studies are presented.

### The Association of Dermatomyositis and Malignancy

ARTHUR C. CURTIS, HOYT C. BLAYLOCK, and E. RICHARD HARRELL, University Hospital, Ann Arbor, Mich.

The various clinical, pathological, and x-ray manifestations of dermatomyositis are exhibited by photographs. There are also similar photographs of a series of patients with both dermatomyositis and malignancy.

### Epidermotectoscopical View of Some Dermatoses

ANTE VUKAS, Susak, Jugoslavia.

The exhibit consists of a series of photomicrographs of different dermatoses represented in their tangential cut, which enables one to see fine surface structures of the normal and diseased skin and displays the pathological changes of the epidermis in a hitherto unusual perspective and topography (epidermotoectoscopy). The tangential section of dermatoses is exhibited together with the usual vertical section and in the same magnification in order to be able to compare the details in both projections.

### Chemosurgery in Dermatologic Office Practice

R. RAYMOND ALLINGTON, H. J. TEMPLETON, C. J. LUNSFORD, and H. V. ALLINGTON, Oakland, Calif.

The exhibit presents the Dr. Frederic E. Mohs chemosurgical technique for microscopically controlled excision of skin cancer as used in dermatological office practice. The steps in the technique are outlined and illustrated by charts, and colored and black and white photographs. Case histories are also available for inspection. Necessary office equipment is listed and, where practical, demonstrated.

### Therapeutic Experiments in Alopecia Areata

CALVIN J. DILLAHA, STEPHEN ROTHMAN, and STANLEY M. MESIROW, University of Chicago, Department of Medicine, Chicago.

The exhibit shows the results of a series of therapeutic experiments in patients with alopecia areata varying from patchy baldness to universal alopecia. All patients received oral cortisone acetate and, in most cases, regrowth of hair was detectable one month after initiation of therapy. Regrowth continued normally in many instances as the therapy was continued. In those cases in which the onset of the disease was prior to and continuous through puberty, and in which the disease was of long duration, cortisone had little or no effect.

### Human Glanders

JOSEPH J. HALLETT, MILTON G. BOHROD, and LEO CRAVITZ, Rochester General Hospital, Rochester, N. Y.

A case of human glanders is presented with colored photographs demonstrating the clinical lesions, gross pathology, histopathology, and bacteriological and animal studies.

### Occupational Skin Dermatoses

DAVID M. COHEN, Chicago Medical School, Chicago.

The exhibit consists of a group of moulages, photographs, and charts illustrating various types of occupational skin disorders.

### Use of 2,3 Dimercaptopropanol (BAL) in Chronic Chrome Dermatitis

HAROLD N. COLE JR., Western Reserve University School of Medicine, Cleveland.

The exhibit presents an evaluation of the use of a 3% BAL ointment applied topically, both in experimentally produced chrome dermatitis in rabbits and clinically in cases of chronic chrome dermatitis in lithographers and Diesel mechanics.

### Grain Itch

Boynton H. Booth and Roland W. Jones, Indianapolis General Hospital, Indianapolis.

Grain itch or infestation by the mite Pediculoides ventricosus was present in epidemic proportions in Indiana during the harvest seasons of 1950 and 1951. Through exposure to infested wheat straw hundreds of persons, including Indiana State Fair employees, exhibitors, and visitors, straw board factory workers, farmers, and others were affected. The basic reasons for the occurrence of this epidemic, the epidemiology of the mite, its geographic distribution, an account of the present epidemic, and résumé of control and therapeutic measures are presented.

### Systemic Lupus Erythematosus

John R. Haserick, A. C. Corcoran, Harriet Dustan, and Lena A. Lewis, Cleveland Clinic, Cleveland.

The development of the plasma lupus erythematosus test has greatly aided the diagnosis of obscure as well as clear-cut examples of systemic lupus erythematosus. In addition to its value as an aid in accurately diagnosing systemic lupus erythematosus, the plasma lupus erythematosus test has been utilized in research on the disease. The factor responsible for the positive plasma lupus erythematosus tests has been found to be in the gamma globulin fraction. Immunological studies have revealed it to be separate from normal gamma globulin. The exhibit also presents evidence that systemic lupus erythematosus may exist for years in latent forms, masquerading particularly as syphilis, through persistent false positive serologic tests for syphilis, and as epilepsy. Results of treatment of 38 patients with systemic lupus erythematosus (all with positive plasma lupus erythematosus tests) with prolonged cortisone and ACTH therapy are presented. The management of the acute lupus crisis with massive doses of cortisone and ACTH is also presented.

### Cytologic Diagnosis of Diseases of the Skin

G. Douglas Baldridge, Louis H. Winer, and Alvin J. Leeb, School of Medicine, University of California at Los Angeles, and Wadsworth General Hospital, Los Angeles.

The exhibit shows the method and values of this new technique. Examples of the diagnostic cell types obtained in a number of skin diseases are demonstrated in color.

### Vibratory Levels in Dermatology, Technique of Quantitative Measurement, Diagnostic and Prognostic Significance of Changes

Samuel Goldblatt, Cincinnati.

The exhibit shows (1) the distribution of the changes in levels of vibratory sense in various diseases of the skin; (2) the effect of specific treatment for the disease upon the levels of vibratory sensation; (3) the technique of obtaining possible reserve of vibratory sensation; (4) the possible receptor mechanisms in skin and transmission pathways through nervous system to cerebral cortex; and (5) the instruments used to obtain quantitative measurement, Roth neurometer and Goldblatt pallometer.

### Sketches from Life

James Herbert Mitchell, Presbyterian Hospital, Chicago.

The exhibit consists of photographs of sketches made from life, without the knowledge of the subject, over a period dating from 1911. For the most part, an attempt was made to get a good likeness and to grasp the personality of the subject. Some of the sketches are caricatures, but they were done in the most kindly spirit. Only a few of the subjects are living. All of the sketches were made in medical groups, without erasure, and none was redone later.

## Section on Diseases of the Chest

The representative to the Scientific Exhibit from the Section on Diseases of the Chest is Edwin R. Levine, Chicago.

### Treatment of Tuberculosis with Hydrazine Derivatives of Isonicotinic Acid

Edward H. Robitzek and Irving J. Selikoff, with the assistance of Erich Mamlok and James A. Rogers, Sea View Hospital, Staten Island, N. Y.

This exhibit deals with the results of therapy in several varieties of pulmonary and nonpulmonary tuberculosis with several hydrazine derivatives of isonicotinic acid. The series embodies approximately 200 cases from the wards of Sea View Hospital, Staten Island, N. Y., and reveals rapid and dramatic response in lung, larynx, tongue, gastrointestinal tract, orthopedic, and other forms of tuberculosis. The cases were failures to other standard therapeutic procedures and the rapid elimination of systemic toxicity was particularly remarkable. Statistical evaluation is given and x-rays, graphs and photographs are shown.

### The Anti-Tuberculosis Activity of Two Hydrazines of Isonicotinic Acid

Gordon M. Meade, E. Osborne Coates, and William Steenken Jr., Trudeau Sanatorium, Trudeau, N. Y., with the collaboration of Ray Brook State Tuberculosis Hospital, Ray Brook, N. Y.

The results of a study of the antituberculosis activity of two hydrazines of isonicotinic acid in experimental animals is demonstrated by x-rays and charts.

### The Practicing Physician in Tuberculosis Control

Vivian V. Drenckhahn, and F. A. Culver, National Tuberculosis Association, New York.

This exhibit emphasizes the responsibilities of the practicing physician in a tuberculosis control program. It sets forth the problems of tuberculosis control, the opportunities physicians have to find cases early, and the possible achievements and limitations of new drugs.

### Isonicotinic Acid Hydrazide ("Nydrazid"): Pharmacology and Antituberculous Activity

John C. Burke, Richard Donovick, Bernard A. Steinberg, and C. W. Armstrong, Squibb Institute for Medical Research, New Brunswick, N. J.

Out of 5,000 drugs tested for antituberculous activity at the Squibb Institute for Medical Research, isonicotinic acid hydrazide ("nydrazid") had the greatest effectiveness. The exhibit shows the in vitro potency of "nydrazid" against the BCG strain of Mycobacterium tuberculosis, compared with that of other antituberculous agents. Animal studies show the drug's effectiveness against the Ravenel strain of M. tuberculosis in mice. Serum concentrations, acute and chronic toxic effects are also presented. In vitro tests show that under certain conditions resistant organisms may emerge in a single passage, but that there is no cross resistance to streptomycin or paraaminosalicylic acid.

### Isonicotinic Acid Hydrazide ("Nydrazid") in the Treatment of Tuberculosis

DuMont F. Elmendorf Jr., William U. Cawthon, Carl Muschenheim, and Walsh McDermott, New York Hospital, New York.

A new antituberculous agent, isonicotinic acid hydrazide, has been studied at the New York Hospital. The exhibit includes data on absorption, distribution in the body, and excretion. Three roentgenograms are presented, with the corresponding clinical charts, to illustrate the variation in response to the drug. One photograph shows almost complete clearing of the pulmonary lesion. A second patient had little or no roentgenological improvement but a good clinical result; the third was not improved clinically or roentgenologically. It is emphasized that "nydrazid" treatment, although highly effective, does not replace surgery and collapse procedures. The exhibit also includes data on bacterial resistance, toxicity and recommended dosage.

### Clinicopathological Correlation in Pulmonary Tuberculosis

Nicholas D'Esopo, Edgar M. Medlar, Oscar Auerbach and Maurice Small, Veterans Administration Hospital, Sunmount and Brooklyn, N. Y.

The exhibit is a clinical, roentgenological, and pathological correlation of removed portion of lung parenchyma after variable periods of treatment by chemotherapy. It is divided into two parts: (*a*) minimal lesions removed after long periods of treatment with streptomycin and PAS and (*b*) more extensive surgery for larger lesions including resections of parts of both lungs.

### Neo-Penil, A Penicillin Ester with Unusual Pharmacologic and Clinical Properties

HARRISON F. FLIPPIN, L. E. BARTHOLOMEW, G. M. EISENBERG, R. J. FERLAUTO, E. L. FOLTZ, W. V. MATTEUCCI and N. H. SCHIMMEL, Philadelphia General Hospital, Philadelphia.

Neo-Penil, the hydriodide of diethylaminoethyl ester of penicillin G, has been shown to possess unique physical properties that cause a greater diffusion of penicillin into the pulmonary and brain tissues than is the case after the intramuscular administration of either potassium penicillin or procaine penicillin. The exhibit presents animal and human pharmacologic data to support the above facts and, in addition, clinical reports dealing with the use of Neo-Penil in acute and chronic pulmonary disease are presented.

### Carcinoma of the Lung in X-Ray Surveys

ALFRED GOLDMAN, Beverly Hills, MARVIN S. HARRIS, and I. ALFRED BRECKLER, Cedars of Lebanon Hospital, Los Angeles and City of Hope, Duarte, Calif.

A series of approximately 100 patients, whose carcinomas of the lung were discovered at x-ray surveys and were surgically resected have been studied and followed up. In addition, a series accumulated through the Committee on Surgical Management of the American College of Chest Physicians has given material for statistical analysis. The following factors have been studied and the results will be depicted: histology, size, location, operability, duration of life following resection, and presence of metastases following resection. Colored transparencies show the histology and gross pathology of these tumors.

### Surgical Treatment of Emphysematous Blebs, Bullae, and Congenital Pulmonary Cysts

EDWARD E. AVERY, JEROME R. HEAD, and T. R. HUDSON, Wesley Memorial Hospital and Northwestern University Medical School, Chicago.

The exhibit consists of x-rays, diagrams, and charts to illustrate symptoms, x-ray findings, complications, and surgical treatment of emphysematous blebs, bullae, and congenital pulmonary cysts. The surgical treatment consists of (1) catheter suction drainage for large unilocular blebs and bullae, (2) resection (segment lobe, or lung) for multiple bullae and cysts, (3) application of multiple blebs, and (4) enucleation of epidermal-lined cysts.

### Thoracoplasty with Subscapular Pack

W. E. ADAMS, WM. M. LEES, ROBERT T. FOX, JAMES M. FRITZ and OTTO L. BETTAG, Municipal Tuberculosis Sanitarium, University of Chicago, Stritch School of Medicine and Hines Veterans Hospital, Chicago.

This exhibit is prepared from clinical material from more than 250 patients who have had collapse therapy for pulmonary tuberculosis during the past four years. The exhibit illustrates the deficiencies of the conventional type of thoracoplasty, namely, (*a*) necessity of multiple stage operation; (*b*) tendency to re-expansion of the lung with recurrence of positive sputum in some cases; and (c) the resultant scoliosis and other deformities which tend to decrease pulmonary reserve. Obviation of these deficiencies by the use of a subscapular wax pack is brought out by the illustrative material. Improvement of the effectiveness of collapse therapy over that obtained by the conventional operation is shown.

### Histoplasmosis—Clinical, Roentgenological, Epidemiological, and Laboratory Features

MICHAEL L. FURCOLOW and J. THOMAS GRAYSTON, Federal Security Agency, Public Health Service and University of Kansas Medical Center, Kansas City, Kan.

A general survey of histoplasmosis including clinical features, x-ray pictures illustrating the various types of pulmonary disease, distribution in the United States, and occurrence in epidemics as well as occurrence in various animals. Laboratory methods of diagnosis will be outlined, including use of skin tests and serological tests. A demonstration of cultural methods of isolation and tissue identification will be presented.

### Physical Methods Developed for the Prevention and Treatment of Pulmonary Atelectasis

ALVAN L. BARACH, GUSTAV BECK, H. EUGENE SEANOR and HYLAN BICKERMAN, Presbyterian, Willard Parker, and Goldwater Memorial Hospitals and Columbia University College of Physicians and Surgeons, New York.

Elimination of bronchial secretions has been accomplished by the development of the following mechanisms: (1) swift decompression of 110 mm. Hg combined with a compressing pressure on the thorax of 40 mm. Hg, produced by a modification of the immobilizing lung chamber; (2) exsufflation, which depends on a full inflation of the lungs by 40 mm. Hg, followed by rapid termination of pressure, in 0.04 seconds. A high expiratory flow rate is thereby produced approximately equal to that of a moderately vigorous cough. Studies of the effects of these procedures include elimination of mucin thorotrast from anesthetized dogs, physiological observation on flow rates and venous pressure, and clinical results, such as clearing of pulmonary atelectasis in poliomyelitis and elimination of mucoid plugs and mucopurulent secretions, in myasthenia gravis, bronchial asthma, and bronchiectasis.

### Bronchial Rearrangement and Bronchiectasis Following Pulmonary Resection

FRANCIS M. WOODS, ALICE ETTINGER, and CHARLES BERNSTEIN, New England Center Hospital, Pratt Diagnostic Hospital, Brookline, Mass.

A comparative review of preoperative and postoperative bronchograms was made in order to study the rearrangement of the bronchial tree after various pulmonary resections. Colored translites illustrate the typical and atypical rearrangements. The material is also analyzed in reference to the occurrence of postoperative bronchiectasis. Cases which illustrate the most frequent causative factors for the occurrence of postoperative bronchiectasis are demonstrated.

### Arteriolization of the Coronary Sinus

CHARLES P. BAILEY, RAYMOND C. TRUEX, ARMOND W. ANGULA, HECTOR P. REDONDO RAMIREZ, and NICHOLAS ANTONIUS, Hahnemann Medical College and Hospital, Philadelphia, and St. Michael's Hospital, Newark, N. J.

The exhibit includes (1) normal anatomy of the minute coronary vascular bed; (2) clinical considerations of coronary artery disease with preoperative and postoperative findings in a series of human surgical cases; and (3) a presentation of the original (Beck) surgical technique plus an original modification.

### Bronchographic Studies in Bronchiectasis Before and After Pulmonary Resection

J. ANTRIM CRELLIN, J. STAUFFER LEHMAN, and JOSEPH L. CURRY, Hahnemann Medical College and Hospital, Philadelphia.

The exhibit consists of transparencies of x-ray films, each accompanied by respective identical drawing of bronchial tree, colored and labeled on transparent film. Selected cases demonstrate various anatomic alterations of bronchial tree following pulmonary resection, in the following categories: (1) distortion, displacement, and tortuosity of remaining bronchi; demonstration that these changes occur in direct proportion to volume of lung removed; (2) development of bronchiectasis in distorted, displaced and tortuous bronchi; (3) development of bronchiectasis as the result of postoperative complications (empyema with bronchopleural fistula); and (4) residual bronchiectasis presumed completely resected in technically difficult cases. Chart of statistics summarize 36 cases, with postoperative results.

## Section on Experimental Medicine and Therapeutics

The representative to the Scientific Exhibit from the Section on Experimental Medicine and Therapeutics is ROBERT W. WILKINS, Boston.

### The Search for New Drugs Against Epilepsy

J. E. P. TOMAN, G. M. EVERETT and R. K. RICHARDS, Abbott Laboratories, North Chicago, Ill.

The exhibit outlines the three types of epileptic seizures, their characteristic EEG pattern, possible fundamental mechanisms involved in their production, and their response to drug therapy. This is correlated with types of seizures in animals, their manifestations, EEG patterns, fundamental mechanism, and their response to various drugs. The possible correlations between the animal studies and clinical seizures in regard to drug response is shown.

### New Methods in Edema Control

Evan W. McChesney, John C. Seed, and John W. Hart, Sterling-Winthrop Research Institute, Rensselaer, N. Y.

A visual and oral demonstration of the newer methods in edema control is presented, with particular reference to the use of newer ion exchange resins.

### Use of Allergens in Combination with "Chlor-Trimeton Maleate" in the Treatment of Allergic Patients with High Sensitivity

Maury D. Sanger, Lawrence Maslansky, Howard G. Rapaport, Samuel Grosberg, and M. Murray Peshkin, New York and White Plains, N. Y.

The work was done in approximately 100 patients in whom the injection of an allergen alone resulted in undesirable local or systemic allergic reactions. The antihistaminic agent ("chlortrimeton maleate") was combined with the allergens in doses ranging from 2 to 30 mg. The mixture was administered by the subcutaneous, intramuscular, and/or intravenous routes. This procedure eliminated the untoward allergic reactions in an appreciable number of patients and reduced in others the severity of reactions observed when the allergen was used alone. By the concomitant use of the antihistaminic drug, an increased dosage of allergen could be injected safely which otherwise, i. e., without the antihistamine, could not be tolerated. The allergens employed were pollen and inhalant extracts, penicillin, and various other drugs.

### Experimental Intracardiac Surgery with Extracorporeal Circulation

W. T. Mustard, A. L. Chute and A. Sirek, University of Toronto, Toronto, Ont., Canada.

The exhibit shows a heart-lung apparatus used in experimental intracardiac surgery. Results of experiments conducted over the past five years are presented, together with the advantages and disadvantages of biological versus artificial oxygenator application to the surgery of congenital heart disease.

### Biosynthesis and Metabolism of Radioactive Drugs

E. M. K. Geiling, A. W. Pircio, and E. J. Walaszek, University of Chicago, Chicago.

The exhibit consists of several medicinal plants in the glass chambers in which they are made radioactive with carbon 14 in the form of carbon dioxide. There is also shown one of the tropical toads (Bufomarinus), from which radioactive bufagin is obtained after the toad has been fed radioactive algae or radioactive lettuce. Charts demonstrate the distribution of several of the radioactive drugs in tissues of experimental animals and the rate of excretion of digitoxin and its metabolites in the urine of human patients.

### Experimental Prevention of Sudden Death from Acute Coronary Artery Occlusion in the Dog

Elmer Milch, Richard W. Egan, Ting Wei Hsia, Arthur A. Anderson, and Walter Zimdahl, Buffalo General Hospital and University of Buffalo School of Medicine, Buffalo, N. Y.

Studies have been carried out on approximately 75 mongrel dogs. EKG tracings, kymographic records of arterial pressure and pathological studies have been made on dogs following occlusion of the anterior descending branch of the left coronary artery. The effect of the minimization of extracorporeal somatic stimuli on the death rate and production of cardiac arrhythmias is presented. A second group has had similar studies with the addition of the controlled intravenous administration of quinidine hydrochloride. The effect of quinidine on the mortality rate and production of arrhythmias is depicted. A method of administration of the drug under controlled conditions is noted. A third series of dogs has been similarly studied following bilateral thoracic sympathectomy, and the effect on mortality rate and cardiac arrhythmias noted.

### Arterial Infusion

Lester Blum, S. J. Megibow, and R. S. Megibow, The *Mount Sinai Hospital*, New York.

The exhibit presents the rationale, technique, and results of employing continuous arterial infusion in the extremities of patients suffering from infection, gangrene, arterial and venous thrombosis, arterial spasm, and postoperative status. In addition there is a life-sized moulage of a thigh with the apparatus actually working in conjunction with it.

### Pathogenesis of Acute Renal Insufficiency—An Experimental Study of Certain Factors

K. G. Wakim, W. A. Block, F. C. Mann, and W. A. Bennett, Mayo Clinic, Rochester, Minn.

The following factors are dealt with: 1. Stimulation of the renal nerves. Continuous or interrupted stimulation of the renal nerves in rats, rabbits, and dogs, which produced marked constriction of the renal vascular tree. The severity and duration of this renal vasoconstriction was so transient that no significant renal damage could be demonstrated. 2. Prolonged hypotension. By maintaining the mean systolic femoral blood pressure of dogs at 70 mm. Hg for periods ranging between 6 and 26 hours renal damage varying in severity from focal areas of degeneration to bilateral cortical necrosis was produced. 3. Pigment nephropathies. Homologous hemolyzed stroma-free red cells injected into a normal animal did not produce renal damage; however, in the presence of severe dehydration or severe reduction in renal blood flow, pigment casts, and associated tubular damage were obtained.

### Cortisone and Hydrocortisone

Augustus Gibson, Charles E. Lyght, Elmer Alpert, and Lyon P. Strean, Rahway, N. J.

A comparison of the most notable physiological and therapeutic effects of cortisone (Kendall's Compound E) and hydrocortisone (Kendall's Compound F) is made, both at the systemi and local tissue levels, in a number of responsive pathologica conditions.

### A Metabolic and Clinical Comparison of the Androgenic Steroids

Jonas Weissberg, Jacqueline Chevalley, Ann M. Shearman, Sidney Stern, and Thomas H. McGavack, New York Medical College, Metropolitan Hospital Research Unit, Welfare Island, N. Y.

The metabolic activities of several androgenic steroids ar compared, with particular reference to nitrogen and minera metabolism. The clinical applications of the androgens are presented, including their use (*a*) in clinical conditions when thei anabolic effects are desirable, (*b*) as therapeutic agents in rheumatoid arthritis, (*c*) in the male and female climacterium, an (*d*) as measures to offset the deleterious mental and physica effects of aging. The contraindications for the use of androgeni steroids are stressed.

### The United States Public Health Service's Clinical Center fo Medical Research

Norman Topping, National Institutes of Health, U. S. Public Health Service, Bethesda, Md.

The exhibit portrays the basic research activities of the variou institutes, extended into the clinical field with the completion o the Clinical Center in 1953.

### Atomic Medicine for Diagnosis and Treatment

Henry L. Jaffe, Cedars of Lebanon Hospital and University of Southern California School of Medicine, Lo Angeles.

A summary of the diagnostic and therapeutic uses of radioactive iodine ($I^{131}$) is presented, including (1) study of thyroi function, (2) treatment of thyrotoxicosis, (3) treatment of thyroi cancer, and (4) treatment of euthyroid cardiac disease. Th therapeutic uses of radioactive phosphorus ($P^{32}$) are summarized, showing (1) treatment of polycythemia vera, (2) treatment of chronic leukemias, (3) treatment of advanced cancer with pleural effusion or ascites by intrapleural and intraperitoneal injection of colloidal chronic phosphate, and (4) treatment of chronic cutaneous and subcutaneous ulcers with radioactive phosphorus ointment.

### Experimental Chronic Tachycardia

W. Horsley Gantt, John E. Peters, W. G. Reese, and Ross Dykman, Johns Hopkins Hospital, Baltimore.

A measured conflict (collision excitatory and inhibitory stimuli) is produced after establishing controls in the chronically ill animal (dogs). Salivary, motor, respiratory, and cardiac simultaneous records are taken. First, normal, excitatory, and inhibitory conditional reflexes are formed, with records made of the cardiac components. Then a graded stress is introduced. Some dogs show not only a disturbance of behavior and loss of balance between excitatory and inhibitory stimuli but a permanent tachycardia to the stress situation. Whether the tachycardia is only acute or is chronic depends upon the type of dog. This susceptibility to breakdown can be measured. Therapeutic measures, including discontinuance of experiments, complete change of environment, and psychotherapy through personal attention, and transformation of the original stimuli through retraining, have cured some dogs and reduced the heart rate in others from 200 to 120.

### Pheochromocytoma, A Cause of Hypertension—Diagnosis and Surgical Treatment

Grace M. Roth, James T. Priestley, W. F. Kvale, N. C. Hightower, Malcolm B. Dockerty, and E. V. Flock, Mayo Clinic, Rochester, Minn.

Various pharmacologic tests are being widely used as an aid in diagnosis of pheochromocytoma. All of these drugs are hazardous when not administered with great care and a confusion of results arises when certain precautions are not taken. In patients with paroxysmal hypertension, histamine, tetraethylammonium chloride and mecholyl® are used. In patients with persistently elevated blood pressure, benodaine,® regitine,® and dibenamine® are used. The adrenal glands are commonly exposed through a transverse abdominal incision permitting simultaneous exploration of both adrenals as well as search in other areas if the tumor is ectopically located. It is essential that both depressor (benodaine® and regitine®) and pressor (epinephrine and norepinephrine) drugs be available for satisfactory control of blood pressure during operation. Since large amounts of both epinephrine and norepinephrine may be present in the circulation either intermittently or continuously in patients with pheochromocytoma, immediate postoperative replacement therapy with epinephrine and norepinephrine is important. The amount of epinephrine present in the tumor can be readily determined by the technique of paper chromatography. The histopathology of adrenal medullary tumors are characterized by chromaffin positive spindle cells.

### Changing Patterns in the Susceptibility of Microorganisms to Antibiotics

Col. Dwight M. Kuhns, MC, Matthew H. Fusillo, and Monroe J. Romansky, Walter Reed Army Hospital and George Washington University School of Medicine, Washington, D. C.

Charts indicate the increased resistance from year to year of bacteria to aureomycin, terramycin, chloromycetin,® penicillin, and streptomycin since the advent of each. Data on the penicillin resistant staphylococci are presented and techniques for sensitivity testing described.

### Side Effects of ACTH—Their Physiological Basis and Clinical Control

G. W. Bissell, Richard J. Meyer, Robert J. Feldmann and Maurice C. Wynes, the Armour Laboratories, Chicago.

The exhibit depicts the side-effects of ACTH, stressing their relative importance, physiologic basis, prevention, and management.

## Section on Gastro-Enterology and Proctology

The representatives to the Scientific Exhibit from the Section on Gastro-Enterology and Proctology are Everett D. Kiefer, Boston, and J. P. Nesselrod, Evanston, Ill.

### Plasma Antithrombin Patterns in Disturbances of the Pancreas

Irving Innerfield, Alfred Angrist, James W. Benjamin, and Alfred Schwarz, New York Medical College and Jewish Memorial Hospital, New York.

The exhibit illustrates specific antithrombin alterations in acute pancreatitis, pancreatic cyst, chronic relapsing pancreatitis, cystic fibrosis of the pancreas, and cancer of the pancreas. An actual water bath set up for demonstrating the technique of plasma antithrombin determinations is included.

### Anorectal Divulsion Versus Pectenotomy

Manuel G. Spiesman and Louis Malow, Mount Sinai Hospital and Chicago Medical School, Chicago.

Anal tightness, called pectenosis, always present in fissure-in-ano and other anal conditions, has been proved microscopically to be due to a pathological fibrous connective tissue band which forms around the anal canal as a result of chronic infection and passive congestion. Unless this band is surgically incised, anal fissure operations are usually not lasting. Anorectal divulsion, as commonly practiced, is traumatic, tearing the fibers of the band and causing a thicker band to form, with resulting recurring fissures. The operation to relieve this condition is called pectenotomy and was first described by Miles and Abel of London. This operation is recommended as a substitute for the unsurgical, traumatic, and unnecessary procedure of divulsion. Stereoscopic viewers demonstrate, in three dimensions, the stages of the operation. Microscopic slides substantiate the pathological presence of pecten bands.

### The Role of Cortisone and ACTH in the Treatment of Therapy Resistant Sprue

David Adlersberg, Henry Colcher, Stanley R. Drachman, and Chun-I Wang, Mount Sinai Hospital, New York.

Observations were made in 24 courses of treatment with cortisone and ACTH in 10 patients with primary sprue. Prior to this form of treatment, nine of these patients proved to be resistant to most extensive forms of accepted sprue therapy. The therapeutic results varied from patient to patient. A clinical improvement was usually manifested by disappearance of diarrhea, increased sense of well-being, improved appetite, and gain in body weight up to 50 lb. It was possible to maintain these patients on very small doses of the drugs for many months without any adverse effects. The effect on absorption tests, radiographic pattern of the small intestine, fecal fat content, blood proteins, and electrolytes are presented.

### Post Subtotal Gastrectomy Syndrome

Paul Kiernan and John C. Sullivan, Georgetown University Medical School and Gallinger Hospital, Washington, D. C.

Charts, drawings, x-ray studies, and photographs depict post subtotal gastrectomy syndrome, i. e., dumping stomach, nutritional difficulties, stomach ulcer, hemorrhage, and obstruction. Methods of avoidance of such are outlined, and corrective surgical procedure for the malfunctioning gastrectomy is emphasized.

### Gallbladder Disease

Bruce C. Lockwood, Harper Hospital, Detroit, Mich.

The exhibit depicts the etiology, pathophysiology, and treatment of the different types of gallbladder disease. Case reports are included, representing the different types and stages of biliary disease, a résumé of the clinical findings, a photograph of the roentgenogram of the gallbladder, and also of the gallbladder itself when removed. Gallstones are exhibited in transparent plastic containers. Reprints, diet sheets, and therapeutic instructions useful in the different types and stages of biliary disorders will be available.

### The Effect of Prantal upon Gastric Motility and Secretion in the Human

LOUIS ZIMMER, JOHN CONIARIS, DANIEL BURBANK, and RALPH MAFFEY, St. Michael's Hospital and Newark Clinical Group, Newark, N. J.

Kymographic tracings before, during, and after the administration of prantal are presented. Concurrent studies on gastric secretion and blood levels of the drug are also described. An attempt is made to demonstrate the effective therapeutic level of prantal necessary to produce decreased gastric motility. Studies in normal patients and those with peptic ulcer are presented.

### An Anorectoplasty for Complicated and Extensive Hemorrhoids

EMIL GRANET, French Hospital, New York.

Commonly, one finds extensive hemorrhoids complicated by mucosal prolapse, cryptitis, papillitis, anal stenosis (pectenosis), and perhaps an anal ulcer triad. In such cases no single operation can completely remove all lesions and yet avoid late complications such as anal contracture, fissure, and recurrent hemorrhoids. An operation which combines the best features of the operation of Whitehead, of Gabriel, of Milligan, and perhaps others is described and the technique illustrated. This anorectoplasty completely removes all diseased tissue and uniformly results in a normally functioning and dilatable anorectum.

### Technique for the Control of Anorectal Pain

JOSEPH M. GROSS, Brooklyn, N. Y.

A new technique has been developed to provide effective local anesthesia of the anorectal region, thus producing a high degree of postoperative pain relief. This is suitable for office use as well as hospital use. The exhibit describes the application of this technique in various anorectal conditions requiring pain relief of both a surgical and nonsurgical nature. Experiences with more than 250 cases are presented, utilizing charts, diagrams, photographs, and photomicrographs. Descriptions of typical cases are presented, and the cautions, hazards, and advantages of local anesthesia in the perianal area are discussed.

### A Critical Study of Postoperative Pain Relief in Proctologic Surgery

CLAUDE C. TUCKER, St. Francis Hospital, Wichita, Kan.

This exhibit describes the pharmacology and histopathology of some of the agents described as producing prolonged anesthesia for proctologic use. By means of charts, drawings, and photographs, the anatomy and nerve supply of the anorectal region, as well as the technique of administration of these agents is presented. The clinical results of a large group of patients are statistically presented, together with a technique for the production of approximately 10 days of local anesthesia. Photographs tissue sections are included.

## Section on General Practice

The representative to the Scientific Exhibit from the Section on General Practice is CHARLES E. MCARTHUR, Olympia, Wash.

### Diagnostic Tests in Endocrinopathies

HERBERT S. KUPPERMAN, ARTHUR BERNSTEIN, EMANUEL KLOSK, SOL PARENT, HENRY GREEN, FRANKLIN SIMON, ALBERT SILVER, JULES H. BROMBERG, and JAY BURGER, Newark Clinical Group, Newark, N. J.

All the established tests used in the diagnosis of endocrine disorders are presented and discussed in detail. The actual technique of the performance of the test when necessary is described. Various explicit examples of endocrine disease are illustrated with color transparencies, and the pertinent diagnostic procedures employed are discussed. The various procedures used in diagnosing ovarian insufficiency, seminal failure, adrenocortical disease, pituitary disease, disturbances in thyroid and parathyroid function and metabolism are presented. Both laboratory and roentgenological findings noted in the above clinical entities are described and appropriate samples depicted.

### Infrared Photographic Studies on the Relation of the Superficial Thoracic Veins to Breast Tumors

LEO C. MASSOPUST and WESTON D. GARDNER, Marquette University School of Medicine, Milwaukee, Wis.

Evidence of disturbed relationships in superficial veins, as provided by the infrared photographic technique, is directly applicable to the problems of detection and classification of breast tumors. In this exhibit, by means of infrared photographic transparencies, variations in patterns of the superficial thoracic and mammary veins are shown as found in a series of over 1,200 patients with breast complaints. Specific cases with breast tumors are presented, with the phlebographic changes and operative and pathological findings. The exhibit shows how such a method may be easily performed by the practitioner in his office or by clinic and hospital facilities. Many statistical conclusions are graphically shown.

### Preoperative and Postoperative Study on Patients with Cushing's Disease and Adrenogenital Syndrome

ROBERT B. GREENBLATT, Medical College of Georgia, Augusta, Ga.

Photographs of patients with Cushing's disease and adrenogenital syndrome before and after treatment are shown, together with photomicrographs of histological tissue sections. Charts and graphs outline and correlate hormonal studies, such as 17-ketosteroids, 11-oxycorticoids, dehydroisoandrosterone, creatine, creatinine, and eosinophil studies. Complete presentations of cases, from diagnosis through therapy and follow-up of several years, are included.

### The Bone Lesions of Ankylosing Spondylitis

ROBERT M. STECHER, WALTER M. SOLOMON, and WILLIAM N. SASSAMAN, City Hospital, Cleveland.

A complete skeleton of a man with ankylosing spondylitis of 10 years' duration is presented, showing a complete bony ankylosis of all joints of the spine including the costovertebral joints, all apophyseal joints, the sacro-iliac joints, both hips and several joints of the right foot. A rheumatoid type of arthritis affected the right shoulder and both knees. The other shoulder, both elbows, both hands and both ankles were not affected. The entire skeleton macerated, weighed 7 lbs. compared to a normal weight of about 20 lbs. Besides the skeleton itself details will be emphasized by photographs and x-rays. The course of the disease is summarized in the clinical history and x-ray reports. Comparison with other examples of ankylosing spondylitis and osteoarthritis of the spine and hips is demonstrated by photographs, x-rays and bone specimens.

### Preservation of Function is a Principal Aim of Plastic Surgery

PAUL W. GREELEY, CLARENCE W. MONROE and ROBERT F. STOKES, Veterans Administration Hospital, Hines, Ill.

This exhibit contains information relative to preservation and function in plastic surgery procedures. It is illustrated with preoperative and postoperative photographs and models demonstrating the preservation of the hands, arms, and jaws.

### Sandpaper Treatment of Acne, Pock-mark, and Tattoos

CLAIRE L. STRAITH, WILLIAM G. MCEVITT, RICHARD E. STRAITH, HOWARD B. RASI, MORRISON D. BEERS and JOHN J. SHERMAN, The Straith Clinic for Plastic Surgery, Detroit.

The exhibit depicts many facial disfigurements, such as acne, smallpox marks, tattoos, and pigmental scars, which can be greatly improved by the use of sandpaper or mechanical abrasion technique, when combined with scar excisions and other methods of treatment. Some other deformities of the face and their treatment are also demonstrated.

### Elements of Psychotherapy in General Practice

RICHARD L. JENKINS, Veterans Administration, Washington, D. C.

The exhibit presents typical situations and reactions which are met and must be dealt with in medical practice, indicates how basic psychotherapeutic principles are embodied in good medical practice. The aim is to give physicians a greater awareness of principles which they are, in fact, already employing; to make them aware of how they can increase their effectiveness through further utilization of psychotherapeutic principles; and to help them recognize more quickly those causes which are best referred to the specialist in psychiatry.

### Rural General Practice Without a Hospital

D. G. Miller Jr., University of Louisville School of Medicine, Morgantown and Louisville, Ky.

This exhibit illustrates a wide variety of diagnostic and therapeutic procedures that may be done by an adequately equipped general practitioner in a rural area. It shows that a small proportion of all the patients seen in an active general practice in a rural area need hospitalization and illustrates many of the procedures which are commonly done in hospitals that may be well done in the physician's office.

### Melanoma

George S. Sharp and John E. Wirth, Pasadena, Calif.

The exhibit demonstrates the differences in the clinical features of the so-called malignant melanoma from the appearances of the various types of benign pigmented lesions, such as pigmented, junctional, and Jadassohn nevi, senile and seborrheic keratoses, and one of the rare malignant cutaneous lesions, the pigmented basal cell carcinoma.

### Headache—Differential Diagnosis and Treatment

Robert E. Ryan, St. Louis.

The differential diagnosis of many types of headache is shown, along with many new forms of treatment. Migraine, histaminic cephalgia, sinusitis, myalgia, and tension are some of the types of headache discussed. Also the physiological aspect and history taking of patients is presented. The results otained with many new preparations still in the experimental stage are also tabulated.

### Glaucoma—What the General Practitioner Should Know

Franklin M. Foote, Willis S. Knighton, and Virginia Smith Boyce, National Society for the Prevention of Blindness, Inc., New York.

The changes in the anterior chamber of the eye in both acute congestive and chronic simple glaucoma are shown. Other illustrations show the theory behind the various surgical procedures used in glaucoma.

### Modern Otolaryngology for the General Practitioner

Thomas B. McCollough and K. M. Day, Eye and Ear Hospital, Pittsburgh, Pa.

The exhibit shows that antibiotics and chemotherapy have not eliminated all the problems of otorhinolaryngology. The number of common procedures in ear, nose, and throat in 1951 is compared with 1935, an arbitrary year from the preantibiotic era. The scope of otorhinolaryngology has increased and results improved through (1) the discovery of antibiotics, (2) the recognition of the role of allergy in diseases of ear, nose, and throat, (3) the recognition of the need for rehabilitation of the deaf, (4) improved techniques for plastic reconstructive surgery, (5) recognition that malignant tumors about the head and neck can be treated with good results.

### Common Complications of Myocardial Infarction—Diagnosis and Treatment

A. Henry Clagett Jr., Veterans Administration Hospital, Wilmington, Del.

Attention is drawn to some of the common complications of myocardial infarction for which either active or preventive treatment may be instituted; illustrative cases are presented with diagnoses and treatments, including cardiac arrhythmias, shoulder-hand syndrome, ventricular rupture, embolism, and some complications including cardiac failure, ventricular aneurism, and shock.

## Section on Internal Medicine

The representative to the Scientific Exhibit from the Section on Internal Medicine is Wesley W. Spink, Minneapolis.

### Coccidioidomycosis

Robert Cohen, Kern General Hospital, Charles Edward Smith, University of California School of Public Health, and Myrnie Gifford, Kern County Health Department, Bakersfield, and Berkeley, Calif.

The etiology, diagnosis, and blood test and the Public Health graph of coccidioides are presented, together with material showing the fungus and skin test material. A cross section of typical cases is illustrated. An evaluation of newer drugs on disseminated cases is included, with a moulage of typical sinus of coccidioides.

### A New Blood Supply for Ischemic Hearts and Lungs

Joseph T. Roberts, University of Buffalo School of Medicine, Buffalo, N. Y.

An original concept for revascularization of ischemic lungs by connecting pulmonary or systemic arteries to secondary pulmonary veins is described, and preliminary results on animals are described. Other studies illustrate the role and direction of flow in the thebesian and other accessory coronary vessels. The important role of vasa nervorum in function of nerves is shown with quartz red visualization of living nerves for first time, supporting the author's explanation of cardiac referred pain by mechanism of vasospastic neuropathy.

### Treatment of Chronic Leukemias

Edwin E. Osgood and Arthur J. Seaman, University of Oregon Medical School, Portland, Ore.

The method of *titrated, regularly spaced total-body irradiation* treatment for chronic leukemias is outlined. All patients with any form of chronic leukemia seen in the Division of Experimental Medicine of the University of Oregon Medical School between Jan. 1, 1941, and June 30, 1951, were treated by this method and results as of Dec. 31, 1951, will be presented and compared with the reported results obtained for 1,978 similar cases treated by other methods. Statistical evidence, based on 163 patients so treated, will be presented to indicate that this method almost doubles the survival time of patients with chronic leukemias, greatly decreases the number of hospital days, and permits usual work and recreation during most of the leukemic life span.

### Therapy of Pseudomonas (Pyocyaneous) Infections with Polymyxin B

Ellard M. Yow, Baylor University College of Medicine, Houston, Texas.

The exhibit includes (1) description of varieties of pseudomonas isolated from 100 patients, with color photographs illustrating colony characteristics and pigment production; (2) results of sensitivity tests of various antibiotics against the strains; and (3) clinical charts illustrating results of therapy with polymyxin B, including dosage, routes of administration, and toxicity.

### Intra-Arterial Priscoline® (2-benzyl-4-5-imidazoline HCl) in the Treatment of Peripheral Vascular Diseases

Heinz I. Lippmann, Montefiore Hospital, New York.

The exhibit presents (*a*) physiological and clinical data as a rationale of the selection of appropriate cases (venous occlusion plethysmograms of fingers, arms, and legs, temperature studies, charts, and drawings); (*b*) clinical results and controls; and (*c*) contraindications.

### Systemic Lupus Erythematosus — Observations on Treatment *and Hematologic Abnormalities*

Edmund L. Dubois, University of Southern California School of Medicine, Los Angeles, Calif.

Observations have been made on 75 cases of systemic lupus erythematosus, 34 controls and 41 patients treated with various regimens of ACTH, cortisone, testosterone, and nitrogen mustard. Life expectancy and clinical courses are compared in both groups. Therapy favorably alters the duration of the disease and greatly modifies its course. Many manifestations of lupus erythematosus simulate complications of therapy. A method of differential diagnosis and treatment is presented. Evidence is also shown that the patient with active lupus erythematosus can metabolize large amounts of testosterone without virilization during exacerbations of the disease. All laboratory abnormalities except advanced nephropathy can be reversed by vigorous hormonal therapy. Three cases of the syndrome of acquired hemolytic anemia as the presenting manifestation of lupus erythematosus are demonstrated. Data suggesting the fact that most of the hematologic abnormalities of lupus erythematosus may be due to hypersplenism are included.

### Histoplasmosis in Man and Animal

JOHN A. PRIOR, SAMUEL SASLAW, CLARENCE R. COLE, and DEANE CHAMBERLAIN, Ohio State University Hospital, Columbus.

The exhibit displays original work in human and canine histoplasmosis, with special demonstrations on epidemiology, diagnostic methods, clinical aspects, comparative pathology, radiology, communicability, and experimental therapy.

### A Tuberculosis Control Program: Its Results and Implications

EARL C. BONNETT, HAYNES H. FELLOWS, DONALD B. ARMSTRONG and LOUIS I. DUBLIN, Metropolitan Life Insurance Company, New York.

The exhibit depicts the experience with a comprehensive clinical program for control of pulmonary tuberculosis in a large employee group and with an extensive public health program for policy-holders and the general public. The material includes (1) case finding, treatment, and rehabilitation among employees of the Metropolitan Life Insurance Company; (2) clinical and statistical data showing the reduction in morbidity and mortality from the disease among them; (3) the subsequent working capacity of those treated for the disease and recurrence rates observed among them; (4) the company's public health and educational program in tuberculosis; (5) its effect on the mortality of policy-holders, and (6) the company's research and other contributions in the field of tuberculosis. X-ray and other illustrations are presented.

### Sigmoidoscopy—An Analysis of 3,500 Consecutive Sigmoidoscopic Examinations

PAUL L. SHALLENBERGER and PETER FISHER, Guthrie Clinic, Sayre, Pa.

An analysis of 3,500 sigmoidoscopics, plus a small additional series of approximately 1,000 cases, is presented, emphasizing various aspects of the examination and statistical results. The rectosigmoid colon and rectum with lesions commonly seen through the sigmoidoscope in place is illustrated. Photographs, photomicrographs, and x-rays correlate typical cases through final surgical management. Interesting rare lesions are shown; a series of colored photographs, life-size, are mounted in a closed box and viewed through sigmoidoscopes to challenge the diagnostic ability of the viewer. Instruments used are displayed.

### Primary Hyperparathyroidism: A Study of 140 Consecutive Cases Between 1928-1951

L. B. WOOLNER, B. MARDEN BLACK, F. R. KEATING JR., and DAVID G. PUGH, Mayo Clinic, Rochester, Minn.

The problems involved in the diagnosis and treatment of primary hyperparathyroidism cover a broad field of medical practice. In past years many cases of primary hyperparathyroidism have undoubtedly been missed because of overemphasis on the skeletal aspects of the disease; for example, in our experience between 1928 and 1941, when the disease was suspected only among patients with severe skeletal disease, only 14 cases were discovered; however, between 1942 and 1951, when the disease was also suspected among patients with urinary calculi, 126 cases were discovered. Accuracy of diagnosis is important because of the development of serious and frequently irreversible renal disease in neglected cases. The exhibit is based on our experience over a period from 1928 to 1951 inclusive and includes (*a*) clinical recognition of primary hyperparathyroidism, (*b*) roentgenologic manifestations of the disease, and (*c*) pathological findings, and (*d*) surgical technique.

### Aspiration Biopsy of the Liver

ROBERT SCHWARTZ, NORMAN DAVIS, and FRANK E. SHERMAN, Veterans Administration Hospital, Aspinwall, Pa.

The exhibit shows photomicrographs and abstracts of case histories, together with (1) historical reviews; (2) indications, contraindications, and complications; (3) technique; and (4) data on 500 cases. A sketch of anatomic relationships, photographs of equipment used, and performance of liver biopsy, as well as an x-ray showing aspirating needle in the liver, are included.

### The Diagnosis and Treatment of Addison's Disease

S. ZELIG SORKIN and LOUIS J. SOFFER, New York.

Advances facilitating early diagnosis and the recent use of depot injections of microcrystalline desoxycorticosterone trimethyl acetate have made possible the total ambulatory management of patients not in crisis. The use of this and other hormone preparations, as well as other measures, in the treatment of crisis and in maintenance management is described and illustrated in the exhibit, which also illustrates characteristic clinic features, diagnostic procedures, and results of treatment. The historical development of the therapy from Addison's time to the present is depicted, and essential facts concerning the adrenal and its hormones are reviewed.

### Modern Antigen Therapy in Chronic Disease

JOHN B. MCDONALD, JACK H. WELCH, HENRY K. OETTINO, and KYLE E. TOWNSEND, Wm. E. Branch Clinic, Lo Angeles.

The exhibit shows how modern antigen therapy improve these patients who have failed to respond to conventiona therapy. Three tables illustrate the antigens used and the result attained from this therapy in 400 cases. The types of disease in these patients are upper respiratory infections, intestinal tra infections and pain syndromes. One case history is attached t demonstrate each type of disease and method of treatment. Tw illustrations show the method of host selection, the method antigen selection and the use of antigens by means of skin rea tion controlled low-dosage method. One cartoon also illustratin ironically how bacteria can be friendly in this type of thera and actually aid in restoring health is shown.

## Section on Laryngology, Otology and Rhinology

The representative to the Scientific Exhibit from the Sectio on Laryngology, Otology and Rhinology is FRANCIS W. DAVISO Danville, Pa.

### Present Day Ear Surgery in Stereo-Photography

GERHARD D. STRAUS, Marquette University School of Med cine, Milwaukee, Wis.

A series of electrically lighted stereoscopic viewers with col photographs of cadaver dissections shows the various steps modern ear surgery, including middle ear, mastoid, and fenestr tion surgery. For orientation, next to each stereoscopic view there is an enlargement of the stereoscopic picture, which labeled to demonstrate the important anatomy. Posters show t indications for the various operative procedures.

### Carcinoma of the Paranasal Sinuses

HAROLD F. SCHUKNECHT and ROBERT M. APPLEMAN, Un versity of Chicago, The School of Medicine and Zoll Dental Clinic, Chicago.

The exhibit shows various stages of the surgical procedur which are used in block dissection of the sinuses. Preoperati and postoperative views of patients are presented. Prosthetic a pliances used to rehabilitate patients with facial surgical defec are included.

### Hearing Is Priceless

ADA M. HILL, American Hearing Society, Washingto D. C.

The exhibit depicts services for the hearing handicapped. I formation is available on the prevention of deafness, conservatio of hearing, and rehabilitation of the hard of hearing. There wi be daily demonstrations of lipreading and the use of hearing aid

### Hoarseness

James J. O'Neil, Creighton University Medical School, Omaha.

The exhibit shows the mirror image of the larynx in adduction and abduction, together with two rotating drums upon which are presented 18 cases of hoarseness with an illustration of the larynx itself and a brief résumé of the case, emphasizing the history, examination, treatment, and the results. The exhibit presents a practical classification of hoarseness, the symptoms, etiology, pathology, diagnosis, and treatment.

### The Scope of Present Day Ear, Nose, and Throat Residency Training

Robert C. McNaught and Walter E. Heck, Stanford University School of Medicine, San Francisco.

This exhibit shows the components of a modern residency in the specialty of ear, nose, and throat, the width and depth of the field being illustrated by charts and photographs. It stresses such phases as audiology facilities, allergy studies, vestibular tests, outpatient care, and surgical procedures, including rhinoplasty, neck surgery, fenestrations, and endoscopy, and such basic sciences as anatomy and pathology.

### Otitis Externa

James W. McLaurin and Albert L. McQuown, Tulane University of Louisiana School of Medicine, Louisiana State University School of Medicine, and Our Lady of the Lake Sanitarium, New Orleans, and Baton Rouge, La.

This exhibit presents the clinical diagnosis, procurement of pathological material for culture, the techniques used for specific isolation and identification of the causative organisms, the number and type of organisms encountered in a series of cases, the sensitivity of each organism to specific antibiotics and chemotherapeutic agents, and the therapeutic principles of treatment of this otologic condition.

### Normal and Pathological X-ray Findings of the Temporal Bone

Marvin J. Tamari and Eugene R. Elstrom, University of Illinois College of Medicine and University of Illinois, Illinois Eye and Ear Infirmary, Chicago.

X-ray films of the four routine positions, Schuller, Stenvers, Mayer and Chamberlain-Towne, demonstrate the development of normal and pathological pneumatization, acute and subacute mastoiditis, pseudopathological conditions, chronic mastoiditis and malignancies. The value of correct positioning of the patient is stressed, and the commoner positions are illustrated by means of skulls in relation to the x-ray tube. A series of photogrammatic sketches depicts roentgenologic anatomy as applied to the commoner radiographic positions of the temporal bone.

### Role of Laryngology and Bronchoesophagology in Medicine Today

Walter H. Maloney, Hahnemann Medical College and Hospital and Episcopal Hospital, Philadelphia.

This exhibit shows the relationship of the laryngologist and bronchoesophagologist to other fields of medicine and surgery, with particular emphasis on the usefulness to the general practitioner. The different phases of resident training in this field are outlined, and the activities of the resident training graphically shown. Surgical technique as well as endoscopic technique are outlined. Particular emphasis will be placed on the opportunities which this field provides for the early diagnosis and treatment of the many problems confronting the general practitioner and specialist in modern medicine.

### Selected Problems in the Diagnosis of Laryngeal Cancer

Stanton A. Friedberg and Linden J. Wallner, Presbyterian Hospital and University of Illinois College of Medicine, Chicago and Veterans Administration Hospital, Hines, Ill.

The exhibit illustrates (*a*) leukoplakia and cordal carcinoma; (*b*) the relation between appearance and actual extent of carcinoma (a comparison of views of the lesion with the operative specimen); (*c*) the lack of symptoms in extracordal carcinoma; (*d*) variations in diagnostic aids; (*e*) problems in the choice of therapy, and (*f*) carcinoma of the larynx and tuberculosis.

### Surgical Treatment of Carcinoma of the Larynx

Joseph H. Ogura and Theodore E. Walsh, Washington University School of Medicine, St. Louis.

The surgical principles and technique of the one-stage laryngectomy and radical neck dissection for the treatment of carcinoma of the larynx are illustrated. In the past, late failures following laryngectomy alone were due to: (1) local recurrences by the use of the narrow field technique and (2) late appearance of palpable cervical metastases in a neck previously reported as clinically negative. Emphasis is placed on prophylactic radical neck dissection at the first excision because of the high frequency of microscopic metastases in impalpable cervical lymph nodes. The cosmetic and functional result of the one-stage combined procedure is as good as for laryngectomy alone. A basis for the selection of the cases and results to date is given.

### Surgical Management of Chronic Mastoiditis

Kinsey M. Simonton, Mayo Clinic, Rochester, Minn.

The exhibit illustrates the surgical management of chronic mastoiditis and its common complications. Exposure of the surgical field by both endaurícular and postauricular routes are demonstrated. The indications and technique of radical mastoidectomy and modified radical mastoidectomy are given. Models will demonstrate the gross pathology and the surgical procedures indicated in cases of (1) chronic infection of the mastoid cells, (2) cholesteatosis of the epitympanic space and mastoid antrum, (3) phlebitis of the sigmoid sinus, (4) thrombosis of the sigmoid sinus, (5) pacchymeningitis, (6) subdural abscess or contiguous brain abscess, (7) fistula of the semicircular canal, (8) suppurative labyrinthritis, (9) abscess of the petrous pyramid, (10) epidermoid of the petrous pyramid, and (11) inflammation involving the facial nerve.

### Progress in Rhinology—Anatomy, Physiology and Surgery of the Nasal Septum and Adjacent Structures

Maurice H. Cottle, Chicago Medical School, Chicago, Ralph Riggs, Shreveport, La., Kenneth Hinderer, Pittsburgh, James Chessen, Denver, George G. Fischer, Wilmette, Illinois and Thomas J. Quilty, Chicago.

The exhibit illustrates newer concepts of the anatomy, physiology and pathology of the nasal septum and associated structures and the clinical and surgical applications of this information. Large transparencies in color, models, photographs and drawings will be used to illustrate the more significant facts.

### Fenestration Operation—A Study of Failures, Their Cause and Prevention

George E. Shambaugh Jr., Eugene L. Derlacki, Donald W. Shuster, and Jesse E. Waller, Northwestern University Medical School, Chicago.

This is a follow up study of 3,000 fenestration operations, with an analysis of the early and late hearing results and with particular attention to the failures. The three principal causes for failure are osteogenic closure, incorrect selection of cases, and postoperative serous labyrinthitis. Each of these causes is studied in detail, with a correlation of animal experimentation with the clinical picture. Technical improvements in the operation to overcome these causes for failure are shown in models.

### Mirror Laryngology

Joseph I. Kemler and Albert Steiner, Baltimore Eye, Ear and Throat and Sinai Hospitals, Baltimore.

Laryngeal examinations and biopsy with the mirror in the indirect method are shown. Charts and x-ray films show the exact working in the larynx as well as operations and cauterization in the larynx with the indirect method.

## Section on Military Medicine

The representative to the Scientific Exhibit from the Section on Military Medicine is Col. William S. Stone, Washington, D. C.

### Ideal Amputations and Prostheses

Col. A. W. Spittler, MC, Col. E. W. Hakala, MC, and Capt. John Payne, USAF (MC), Walter Reed Army Hospital, Washington, D. C.

Ideal amputation stumps at various levels of upper and lower extremities and their prostheses are demonstrated by miniature models. Illustrations show surgical technique and activation of the prostheses.

### Virus Diseases of Special Interest to the Dermatologist

Capt. Ernest R. Trice, MC, M. R. Hilleman, Lieut. Col. Robert G. Thompson, MC, and Lieut. Col. William Piper, Walter Reed Army Hospital, Washington, D. C.

The exhibit presents a pictorial review of the practical aspects of our present knowledge of viral infections of the skin. Clinical characteristics and methods of laboratory diagnosis in general are included. Proper collection of specimen for virus study will be demonstrated.

### The Exposure Treatment of Burns

Col. William H. Amspacher, MC, USA, Major Curtis Artz, MC, USA, Capt. Eric Reiss, MC, USA, and Lieut. John H. Davis, MC, USA, Brooke Army Medical Center, Fort Sam Houston, San Antonio, Texas.

The exhibit presents several typical cases treated for various types of burns by the exposure method. Charts and graphs summarize experiences with over 200 patients treated by this method at the Brooke and Tokyo Army Hospitals and representing both battle and nonbattle casualties. Moulages depict progression of healing in the exposure method.

### The Army Medical Library

Lieut. Col. F. B. Rogers, MC, Army Medical Library, Washington, D. C.

Photographs, charts, and slides explain the facilities available from the Army Medical Library and the methods by which its services are made available to various professional and scientific groups.

### Study of Enteric Disease by the Joint Dysentery Unit, Department of the Army, Office of the Surgeon General

Col. William S. Stone, MC, Walter Reed Army Medical Center, Washington, D. C.

A series of photographs depict findings on therapy and studies by the Joint Dysentery Unit (sponsored by the Commission on Enteric Infections of the Armed Forces Epidemiological Board, the Surgeon General, and the Far East Command) at Koje-Do, Korea, Prisoner of War Camp, made during the summer of 1951.

### Arteriovenous Fistulas and False Aneurysms in Korean War Wounded

Brig. General Sam F. Seeley, Lieut. Col. Francis N. Cooke, Lieut. Col. Carl W. Hughes, and Capt. Edward J. Jahnke Jr., Walter Reed Army Hospital, Washington, D. C.

Transparencies show preoperative and postoperative management of traumatic fistulas and aneurysms utilizing autogenous vein grafts and homologous arterial grafts. Arteriograms show postoperative results. Drawings demonstrate surgical approaches. Accumulated data and clinical findings are tabulated.

### United States Air Force Air Crew Effectiveness Program

Major J. A. Connors, USAF, (MC), U. S. Army Air Force, Washington, D. C.

The exhibit presents the various specialized medical activities of the United States Air Force Flight Surgeons in maintaining combat efficiency and ability to perform missions.

### In-Flight Feeding and Nutritional Problems in Military Flying

Col. Robert H. Blount, USAF (MC), U. S. Army Air Force, Washington, D. C.

A presentation of some of the special problems in feeding and sustaining air crews in long endurance, high altitude flight environments. Specialized diets and serving and preparation equipment provide the current answer.

### Polyethylene Cranioplasty

Capt. Walter S. Lockhart, MC, Major Warren Kimsey, MC, and Lieut. Gordon Van den Noort, Valley Forge Army Hospital, Phoenixville, Pa.

Repair of skull defects with polyethylene is demonstrated in patients with penetrating head injuries from the Korean conflict. Moulages show the contour of the head before and after operation and a polyethylene plate secured in place. Methods of fashioning the material and operative techniques are demonstrated by color photographs and a display of special instruments and material used.

### The Use of Small Laboratory Animals in Radiation Biology

Friedrich P. Ellinger, J. E. Morgan, and F. W. Chambers Jr., Naval Medical Research Institute, National Naval Medical Center, Bethesda, Md.

The exhibit presents a demonstration of reproducibility of animal experimental data on effects of total body irradiation, with physical and biological criteria aimed at possible extrapolation to man. Further application of the foregoing procedures and data to pharmacological studies intended to develop means for counteracting injurious effects of total body radiation are included.

## Section on Nervous and Mental Diseases

The representative to the Scientific Exhibit from the Section on Nervous and Mental Diseases is Leon J. Whitsell, San Francisco.

### Intracranial Angiography

S. Paul Perry, Arthur B. King, and Jessie T. Littleton, Guthrie Clinic, Sayre, Pa.

The exhibit shows reproductions of cerebral angiograms demonstrating pathological conditions ranging from simple aneurysms to brain tumors.

### Studies in Psychosurgery at the St. Louis State Hospital

Leopold Hofstatter, Louis H. Kohler, Anthony K. Busch, Mina D. Morris, and Abel G. Ossorio, St. Louis State Hospital, St. Louis.

An original investigation on about 350 patients who underwent psychosurgery with different techniques from 1941 to 1951 is presented. The purpose of the study was to delimit undesirable side-effects as well as the amount of surgical destruction within the frontal lobes, with no sacrifice to the optimum of therapeutic effectiveness. The outcome of this comparative study was a method of isolated transection of the lower prefrontal quadrants, with emphasis upon the mesio-orbital fibres. Evaluation of the results was based upon extensive clinical observations and comprehensive psychological tests.

### Living Organisms in Mental Disease As Seen Under Phase Microscope

James W. Papez and B. Pearl Papez, Columbus State Hospital, Columbus.

The exhibit shows (1) mounted photomicrographs of zooid organisms in cytoplasm of nerve cells from cortex and thalamus and photographs and colored drawings of nature of primary damage to nervous tissue; (2) demonstration of living organisms in saline solution under phase microscopes. Colonies of zooids in nerve cells are shattered, only individuals from different stages of life cycle can be seen as primary cysts, statoblasts, stolons, filaments, rods, segmented forms, globules, chains of globules, and irregular forms. Charts of life cycle are exhibited. Zooids encysted in red blood corpuscles are shown in charts.

### The Systematic Development and Clinical Testing of New Petit Mal Compounds

FREDERIC T. ZIMMERMAN, LAUREN LONG, and GRAHAM CHEN, Neurological Institute, Columbia University College of Physicians and Surgeons, New York.

The exhibit demonstrates the rationale of synthesizing chemical compounds appropriate for the treatment of petit mal epilepsy, with laboratory methods of assaying the anticonvulsant properties of the compounds, animal toxicity studies, and the experimental technique, procedure, and criteria of evaluating and comparing the various drugs clinically.

### Social Group Work—A New Service to the Emotionally Ill Patient in Private General Hospital Care

CUTHBERT C. GIFFORD, MURRAY KINSMAN, ARDEN E. HARDGROVE, S. SPAFFORD ACKERLY, and E. E. LANDIS, Morton Memorial Infirmary and University of Louisville School of Medicine, Louisville, Ky.

The exhibit shows (1) the general practitioner referring a patient for psychiatric care; (2) the staff team in which the referring physician becomes a participant, focussing its various coordinated disciplines in serving this patient; and (3) social group work emphasizing (*a*) the attitude of the withdrawn patient to self and group, (*b*) gradual involvement in the life of the patient group, (*c*) changing relationships with other patients, (*d*) growth of the patient in security and self-expression in the group, and (*e*) contributions of this experience to his total treatment. Literature will be available.

### Discography in the Diagnosis of Herniated Intervertebral Disc

GEORGE W. SMITH, JOSE A. ALVAREZ DE CHOUDENS, POMEROY NICHOLS JR., JAMES S. BROWNE, and AUGUST KIEL, University of Maryland School of Medicine, Baltimore.

The exhibit shows the history of discography. Indications as well as the pitfalls and hazards of the procedure are listed, together with the steps of the techniques. Discogram x-ray films on 20 surgically proved cases are shown with case histories and descriptions. Normal discogram x-ray films on L3-L4 and L5 interspaces are also shown. The relative value of discography based on a series of 50 patients is included.

### The Diagnosis of Space Occupying Intracranial Lesions by Angiography

HAROLD C. VORIS and PETER V. WESTHAYSEN, Mercy Hospital and Stritch School of Medicine, Loyola University, Chicago.

The exhibit shows the advantages and disadvantages of angiography in the diagnosis of space occupying intracranial lesions and the diagnostic criteria for different types of lesions in various locations.

### Intracranial Neoplasms—Primary and Metastatic

BELA HALPERT and WILLIAM S. FIELDS, Veterans Administration Hospital and Baylor University College of Medicine, Houston, Texas.

The brain is enclosed in an unyielding box with stiff partitions for its major subdivisions. Increased pressure in one compartment is gradually transmitted to the others. An expanding neoplasm within the cranial cavity produces intracranial hypertension, compression of adjacent brain substance, impairment of blood supply, interference with the circulation of cerebrospinal fluid, and distortion of the adjacent ventricle. The increased content of one compartment causes the brain to bulge into adjacent compartments producing pressure grooves and herniations. These features are illustrated by roentgenographs, color transparencies of the gross specimens, and microscopic structures of the lesions from 12 patients.

### The Paralyses: Technique for Rapid Restoration of Function

A. W. SCHENKER, New York, H. V. MORELEWICZ, and P. B. RANSOHOFF, University of Buffalo School of Medicine, Buffalo, N. Y., and Monmouth Memorial Hospital, Long Branch, N. J.

In neuromuscular dysfunction from any cause, function can be restored most effectively by means of volitional movement done rhythmically against progressively increased resistance. Before function can be achieved five successive phases are passed through in following order: 1. Orientation: reestablishes perception of movement. 2. Rhythmicity: establishes habit pattern and reduces synaptic resistance. 3. Progression to maximum resistance: Volitional movement against measured resistance in small progressive increments until maximum resistance is reached. 4. Voluntary initiation of prime movement: This is done with minimal substitution. 5. Endurance: When plateau of speed and resistance is reached it is an index that maximum hypertrophy of remaining dormant muscle fibers (undamaged by disease) has been attained. Essential features: (a) ability to deal with extremely weak muscles. (b) Intensity of treatment assures early restoration of function.

### Tension Headaches

ARNOLD P. FRIEDMAN and R. C. J. VON STORCH, Montefiore Hospital, New York.

This exhibit shows the data derived from the study of 500 patients suffering from tension headache. The mechanism of tension headache, diagnostic features, differential diagnosis, and therapy of the acute attack as well as prophylactic treatment are considered.

### Form Fitting Plastic Cranioplasty

WILLIAM T. SPENCE, Georgetown University Medical Center, Washington, D. C.

A method of taking an impression of the cranial defect and the manufacture of a form fitting plastic cranial bone replacement at the time of operation is described by drawings, x-rays, samples and an actual skull showing the advantage of the plastic inlay over tantalum or any other kind of plate.

### New Viewpoints in Cerebral Localization

LELAND B. ALFORD, St. Louis.

The thesis of the demonstration is that the clinical picture of dementia or confusion is produced from the region of the thalamus and from no other part of the brain. To be seen are cases with a small and single lesion that showed dementia and as controls large lesions in vital cortical areas in which a high level of mental performance was maintained. On the basis of these and other considerations, the aphasias, agnosias, and apraxias are interpreted not as valid symptoms but as accidental combinations of physical and suggested reactions.

### Arteriovenous Malformations of the Brain—A Cause of Spontaneous Subarachnoid Hemorrhage

FRANK H. MAYFIELD, E. S. LOTSPEICH, and CURWOOD R. HUNTER, Cincinnati.

Photographs of x-rays, and drawings to show arteriovenous malformations of the brain.

### Newer Trends in Geriatric Psychiatry

WINFRED OVERHOLSER, THEODORE C. FONG, and SOLOMON KATZENELBOGEN, St. Elizabeths Hospital, Washington, D. C.

A special geriatric psychiatric service was recently established at St. Elizabeths Hospital. This is a new trend in the administration of mental hospitals designed to promote more effective handling and treatment of aged psychiatric patients. The exhibits will offer a pictorial presentation of the new geriatric building at St. Elizabeths Hospital. The outstanding features in this 500 bed geriatric service will be illustrated by photographs and Kodachrome slides. Hand rails, especially adjustable beds, and waist high bathtubs are special features.

### Pathology of Nervous Disorders

JOSEPH A. LUHAN, Stritch School of Medicine of Loyola University and Cook County Hospital, Chicago.

This is essentially an atlas of neuropathology, consisting of Kodachrome transparencies, photographs, and photomicrographs of neuropathological material routinely encountered in a large general hospital. Stress is laid on conditions of special interest to general practitioners of medicine, particularly on appearances of gross specimens in cerebral vascular accidents, brain injury, and in infections, degenerative, and neoplastic disease of the central nervous system. Wherever possible, brief clinicopathological correlation is given in explanatory legends.

### Spondylolisthesis Studies—The Callus Shadow in Fifth Arch Deficiency

Lee A. Hadley, Syracuse, N. Y.

Spondylolisthesis usually presupposes a defect in the fifth neural arch, exceptions being pseudospondylolisthesis and forward slipping from an unusually long neural arch. Forty-five degree oblique radiographs are necessary to visualize the fifth arch defect. It is not unusual to visualize a smooth, rounded bony callus formation projecting into the spinal canal at the site of the defect. Such callus is evidence of trauma. Reverse spondylolisthesis has been established as a distinct entity. Disc degeneration and instability are factors in causing this condition as well as pseudospondylolisthesis. Foramen constriction may take place, and a supportive compensatory impingement between various structures in this region is likely to develop.

### Use of Intermittent Traction in the Cervical Spine Syndrome

Jesse B. Griffith, Pittsburgh, Pa.

The exhibit consists of anatomic charts which show the neurological connections of the neck with structures above and below. There are x-rays of patients who have been benefited by cervical traction treatment, as well as charts of differential diagnosis, description of treatment, and collars of various types with an original aluminum collar and an original vertical traction machine for applying the treatment.

### The Scapulohumeral Angle

Harold Lefkoe, Philadelphia.

Many patients with shoulder pathology are treated for a long time because of a so-called negative x-ray of the shoulders. This is because the conventional views and their interpretation are not always as complete as they might be. The exhibit illustrates a new technique by which motion at the scapulohumeral joint can be measured. By this technique many previously reported negative x-rays of the shoulder are now seen to have considerable limitation of joint motion. This is presented in the hope that the new reported limitation will give the physician an opportunity to investigate methods of treatment of the limitation and ensuing disability.

### Rheumatoid Arthritis: Present Status of ACTH and Cortisone Therapy and Recent Advances in Reconstructive Surgery of the Knee and Hip Joints

Theodore B. Bayles and Theodore A. Potter, Robert Breck Brigham Hospital, Boston.

The exhibit shows standard conservative methods of treatment together with the present status of ACTH and cortisone in heumatoid arthritis, its complications and contraindications. hotographs of preoperative and postoperative procedures in nylon knee arthroplasties and plastic hip prostheses are also shown.

### Inexpensive, Improvised Dynamic Splints for Injured Hands

Lieut. Col. Victor B. Vare (MC), and Lieut. Erle E. Peacock (MC), Valley Forge Army Hospital, Phoenixville, Pa.

The failure of early application of appropriate dynamic splints to the injured hand is responsible for unnecessary disability and prolonged rehabilitation. A simple, inexpensive, and highly efficient method is offered which is particularly applicable where elaborate brace shop facilities are not available. Moulages with splints applied, splints available for examination, and photographs of equipment necessary for fabrication of the splints make up the exhibit.

### Light Bulb Prostheses for the Hip

Frederick S. Webster, J. E. M. Thomson, C. F. Ferciot, and W. W. Bartels, Lincoln Orthopaedic Clinic, Lincoln, Neb.

Drawings, transparencies, and anatomic models show the use of prostheses of the hip, mainly of the Thomson-Lincoln Orthopedic Clinic varieties. This is from an experience in the use of 60 cases and stresses the indications, contraindications, techniques, observations, and results.

### Intramedullary Fixation of Common Fractures

John T. F. Gallagher and Thomas Rutter, Jackson Clinic, Madison, Wis.

This exhibit shows the intramedullary fixation of fractures of the radium, ulna, clavicle, and ankle not amenable to a satisfactory closed reduction. The various steps in the pinning of each fracture will be portrayed through the use of wax models. A summary of the various procedures is presented.

## Section on Pathology and Physiology

The representative to the Scientific Exhibit from the Section on Pathology and Physiology is Frank B. Queen, Portland, Ore.

### Studies on Clot Density

Bruno W. Volk and Samuel Losner, Jewish Sanitarium and Hospital for Chronic Diseases, Brooklyn, N. Y.

A photoelectric modification of the one-stage quick determination of prothrombin time has been established, utilizing the change in optical density of the clotting plasma. This change as read from the optical density scale of the Coleman Spectrophotometer was termed clot density. The normal value ranges from 5 to 15. In a series of 100 gravimetric determinations of fibrinogen, the clot density was directly proportional to the fibrinogen concentration in the plasma, the relationship being represented by the formula $F = 18\ d + 120$ ($F =$ fibrinogen in mg. per cent, $d =$ clot density). Serial comparisons of the clot density with the sedimentation rate of 80 acutely and chronically ill patients performed every other day for periods varying from three days to three months showed that both procedures follow a similar pattern. In general, the sedimentation rate showed more marked fluctuation in a number of acute cases inexplicable from a clinical or laboratory standpoint. On the other hand, the clot density seemed to reflect the progress of these patients' condition rather closely. It was observed that the clot density increases in acute diseases and returns to normal with clinical improvement.

### Pathology of the Facial Bones

Casper M. Epsteen, Chicago.

The exhibit includes photoroentgenograms of various pathological conditions of the facial bones, a series of line drawings of the pertinent normal anatomy and physiology, and Kodachrome transparencies of human skulls which reveal injuries to the facial bones, and a method of treatment.

### Certification of Medical Technologists

Lall G. Montgomery and Ruth Drummond, American Society of Clinical Pathologists, Muncie, Ind.

The exhibit shows function and activities of the Board of Registry of Medical Technologists of the American Society of Clinical Pathologists, in its work of setting standards for medical laboratory workers and certifying them. Booklets of information, lists of approved schools of medical technology, charts showing statistics on salaries, distribution of registrants, and various other elements pertaining to the general picture of the progress of this phase of medical laboratory work are included

### Radioactive Thyroxine Synthesis in the Evaluation of Thyroid Function

M. E. Morton, Veterans Administration Hospital, Long Beach, Calif.

The techniques of measuring thyroid function by radioactive iodine are described and compared as to sensitivity, simplicity, and clinical correlation. Factors such as safety in handling radioisotopes are presented from the personnel standpoint as well as from that of the patient. The greater usefulness of thyroxine synthesis measurements in the over-all evaluation of thyroid function and its greater sensitivity as a diagnostic aid in clinically equivocal cases are shown.

### Chemical and Radioisotopic Measures of Hemopoiesis

Howard L. Alt, Walter A. Rambach, and John A. D Cooper, Northwestern University Medical School Chicago.

Desoxyribose nucleic acid is found almost exclusively in cell nuclei and is synthesized during cell mitosis. Ribose nucleic acid occurs predominantly in the cell cytoplasm and is related to protein synthesis, whether for growth, maturation, or secretion. Studies on the content and radiophosphorus uptake of the nucleic acids of the bone marrow of the rat along with changes produced by x-ray and anoxia will be presented. The nucleic acid values are shown to be an index of cellularity and rate of cell division and to reflect in part the process of cell maturation. This concept is supported by the close correlation between the nucleic acid determinations and the morphological changes in the bone marrow.

### Skin Cancer—Exclusive of Melanoma

BERNARD M. CHAPMAN, ISADORE PILOT, JULES WEINBERG, and SOLOMON BOROS, Edgewater Hospital, Chicago.

The exhibit shows skin cancer arising in antecedent lesions. The correct method of biopsy is illustrated, and various types of treatment are indicated, emphasis being placed on adequacy of therapy. The correct method of handling the surgically excised specimen to determine adequacy of excision is presented. Photographs show that skin cancer can be fatal because of neglect or inadequate treatment.

### Factors Influencing the Incidence of Mammary Cancer in Mice

E. R. HAYS, JOHN L. FULLER, and CLARENCE C. LITTLE, Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Me.

The historical development of the steps which led to the discovery of the maternal influence, hormonal factors, genetic factors, and eventually the milk factor (mammary tumor inciter) are reviewed. The relation of hormonal unbalance to the incidence of mammary tumors in mice are also shown. The data included the period from 1925 to the present, showing the recognition of the genetic factor in mammary tumor incidence by J. A. Murray, Tyzzer, and others, and the subsequent experimental work by the Roscoe B. Jackson Memorial Laboratory group, which has led to our present knowledge in this field.

### Parasitology

EMMA S. MOSS, J. C. SWARTZWELDER, MARION HOOD, PAUL C. BEAVER, A. J. WALKER, and WILLIAM W. FRYE, Tulane University School of Medicine, Louisiana State University School of Medicine and Charity Hospital of Louisiana at New Orleans.

This is an exhibit on intestinal, tissue, and blood parasites presented in the following divisions: amebiasis, helminthiasis (including diseases caused by nematodes, cestodes and trematodes), and malaria.

### The Pulsatile Arterial Circulation

CARL A. JOHNSON, St. Luke's Hospital and University of Illinois College of Medicine, Chicago.

The exhibit shows results of studies of the pulsatile arterial circulation in the extremities, neck, head, and brain, including studies on normal subjects from birth to old age, and subjects with cardiovascular disease with and without congestive heart failure. The instrument used to make these studies will be shown. A device used as a mechanical heart, which is to test the equipment, and by which any normal or pathological pulse wave can be duplicated with mathematical precision will be demonstrated. Some of the mathematically computed pulse waves from various diseases will be projected through the recording instrument on a projection screen. The procedure for rapidly measuring the speed of the pulse wave in the arterial tree will be demonstrated by charts.

### ACTH and Cortisone in Blood Dyscrasias

OSCAR B. HUNTER JR. and PAUL KIERNAN, Georgetown University School of Medicine and the Doctors Hospital Research Foundation, Washington, D. C.

The exhibit will consist of an organized display of the beneficial effect of ACTH and cortisone in many types of hemolytic anemia, hemophilia, anemias, thrombocytopenia, and leukopenia due to hypersplenism and in paroxysmal hemoglobinuria, together with an analysis of the underlying mechanisms which are disturbed in the disease and corrected by the drugs.

### Acute Anuria

SAMUEL A. LEVINSON and MAX BERG, University of Illinois College of Medicine, Chicago.

The exhibit shows the physiological alterations in acute anuria. Recent studies illustrate the histological and histochemical alterations in the kidney in shock induced by Clostridium perfringens toxin together with the recent advances in therapy.

### The Prothrombin Consumption Test

ARMAND J. QUICK and CLARA V. HUSSEY, Marquette University School of Medicine, Milwaukee, Wis.

The prothrombin consumption test, which is based on the determination of the prothrombin remaining in the serum after blood has been clotted under standardized conditions, will be demonstrated by actual determinations. The application of the test to the diagnosis of hemophilia, thrombocytopenia, and thrombasthenia will be illustrated by charts. All the material needed for the test will be displayed, and the preparation of the required reagents explained.

### Blood Pressure and Renal Function

R. E. SHIPLEY and R. S. STUDY, Lilly Laboratory for Clinical Research, General Hospital, Indianapolis, Ind.

The exhibit summarizes several changes in renal function which occur in the experimental animal when the kidney is subjected to a wide range of (1) increased and (2) decreased blood pressures. From direct measurements of renal blood flow, extraction per cent of inulin, and rate of urine flow, it is possible to demonstrate the basic factors and control mechanisms involved in the regulation of blood flow through the kidney, glomerular filtration rate, and tubular reabsorption of the filtrate.

## Section on Pediatrics

The representative to the Scientific Exhibit from the Section on Pediatrics is F. THOMAS MITCHELL, Memphis, Tenn.

### Neoplasms in Childhood

WILBUR C. THOMAS, L. EDWARD HACKWORTH, and RICHARD KOCH, Children's Hospital Society, Los Angeles.

A survey of the large number of neoplasms seen at the Children's Hospital of Los Angeles over the past quarter of a century is presented by a central chart. Flanking this are panels devoted to individual groups of tumors presenting diagnostic signs and follow-up studies by means of photographs, transparencies, and charts, Mimeographed pamphlets giving detailed information are available.

### Pediatric Inhalation Anesthesia

H. M. SLATER and R. K. CUMMING, Children's Memorial Hospital, Montreal, Quebec.

With the steady progress of pediatric anesthesia in recent years, many techniques have arisen to facilitate the requirements of present day surgery. The exhibit is planned to stress reliable, practical, and safe procedures. On display are working models of safe techniques applied to general anesthesia which have proved satisfactory in such cases as surgery for cleft lip, cleft palate, thoracic surgery, and short procedures. In conjunction with these models is a display of samples of anesthesia equipment to illustrate changes in designs to suit pediatric practice. There is also a new tent administering oxygen humidity to infants. Charts, posters, and photographs will complete the exhibit.

### Normal and Abnormal Human Heredity

HENRY W. EDMONDS, Armed Forces Institute of Pathology, Washington, D. C.

A series of photographs, models, and diagrams will depict different modes of Mendelian inheritance in terms of specific human diseases and abnormalities, with explanations of mechanisms of human heredity.

### Neuroblastoma in Childhood

Harold W. Dargeon, Children's Tumor Registry, New York, and C. Everett Koop, Philadelphia.

Neuroblastoma is one of the more frequently observed malignant tumors of children. The variability in its site of origin and clinical course are of importance from the standpoint of diagnosis and treatment. The prognosis, while always serious, is by no means hopeless in all cases.

### Mechanisms of Development of Malformations of the Nervous System

Samuel P. Hicks, New England Deaconess Hospital, Boston.

The mechanisms by which malformations of the nervous system may be induced in mammals experimentally are shown. The developing mammalian nervous system is especially sensitive to agents that inhibit neuroblast protein synthesis. Ionizing radiation, sulfhydryl reagents, certain hormones, such as cortisone, and other chemicals are effective in altering nervous system development. The time of injury as well as the agent is important.

### Approaches to Cerebral Palsy

Fred A. Mettler, Harry Grundfest, E. B. Schlesinger, David Cohen, and Abner Wolf, Columbia University College of Physicians and Surgeons, New York.

Examples of pathological, cytological, electrophysiological, and pharmacologic approaches to the study of cerebral palsy are presented. Special attention is given to problems of experimental instrumentation.

### Birth Injuries with Relation to Cerebral Palsy

Charles F. McKhann, United Cerebral Palsy Association, New York.

A survey of a large group of children with cerebral palsy is presented, with analysis of the possible etiological factors, especially in relationship to anoxia or trauma at birth.

### Cerebral Palsy Program

Peter Cohen, University of California School of Medicine, San Francisco, and School for Cerebral Palsied Children, Northern California, Redwood City, Calif.

The exhibit consists of photographs of various phases of treatment of the cerebral palsied child and chart of organization of the cerebral palsy program in California.

### Situational Pattern in Childhood Injury

Barnes Woodhall, Duke Hospital, Durham, N. C.

The exhibit contains 32 water colors depicting patterns of childhood injuries, with legends and titles.

### The Clinicopathological Correlation of Cerebral Palsy

Herman Josephy and H. W. Magoun, American Academy for Cerebral Palsy, Chicago, Ill.

The exhibit consists of slides, charts, and pictures showing the pathology found in the brains of deceased cerebral palsied patients, together with the clinical history of the patient to show the correlation between the brain damage and the clinical picture. This is the exhibit of the Brain Registry of the American Academy for Cerebral Palsy.

### Congenital Anomalies of the Head

J. A. Campbell, John W. Wilson, and Donald E. Vivian, Indiana University Medical Center, Indianapolis, Ind.

This exhibit was prepared as a teaching aid for the undergraduate and postgraduate students in pediatrics and radiology. It illustrates the anomalies of the head most frequently encountered on the pediatric services of a large teaching hospital. The diagnostic features disclosed by plain roentgenograms of the skull and by more specialized radiographic procedures involving the intracranial contents, the bones of the face, and the mandible are demonstrated.

### Hypoproteinosis of Childhood

Harold D. Lynch and William D. Snively Jr., Evansville, Ind.

This exhibit describes the clinical syndrome of hypoproteinosis of childhood. It is divided into four sections, covering the following material: etiological factors involved in hypoproteinosis of childhood, including charts, tables, and diagrams; symptomatology, including a color photograph of a patient with childhood hypoproteinosis, with emphasis on such objective findings as dental caries, flabby musculature, inadequate growth, and anemia; diagnosis, which is based on history, symptomatology, the therapeutic test, and laboratory aids; and management, which is outlined in detail and includes color transparencies of the morning, noon, and evening meals of a moderately high protein diet. The last section of the exhibit includes a typical case history.

### Fetal Mortalities in Cesarian Sections

Harry R. Litchfield, S. David Sternberg, Jacob Halperin, and Richard Turin, Beth-El Hospital, Brooklyn, N. Y.

The exhibit shows morbidity and mortality of infants delivered by cesarian section, together with fetal mortality associated with cesarian section for placenta previa. Incidence of death can be reduced through appropriate obstetric and pediatric measures.

### The Diagnosis and Management of Bulbar and Respiratory Poliomyelitis

Hart E. Van Riper, National Foundation for Infantil Paralysis, New York.

The exhibit will present data on the symptomatology, genera problems of management, and indications for use of mechanica aids to respiration.

### The Teaching of Pediatrics in Medical Schools

E. H. Christopherson, Lee Forrest Hill, and Ralph V Platou, American Academy of Pediatrics, Evanston Ill.

Charts are presented on appropriate backgrounds illustratin various situations and factors influencing the teaching of pediatrics in medical schools.

### Research and Habilitation of Oral Clefts

David Baird Coursin and Herbert K. Cooper, Lancaste Cleft Palate Clinic, Lancaster, Pa.

This exhibit consists of illuminated Kodachrome enlargement showing the problems and treatment of oral clefts, fundamenta research in their causes, methods and procedures of treatmen clinical types, and results. Models of cases and techniques, recordings of speech results, and electroencephalographic studie in speech and hearing are included.

### Newer Concepts in the Treatment of the Premature Infant

Woodruff L. Crawford, Franklin A. Munsey, an Samuel Natelson, Rockford Memorial Hospita Rockford, Ill.

This exhibit illustrates, with case histories, statistical, clinica and chemical data, the application of ultramicrochemical procedures to the treatment of the premature infant. It demonstrate that adrenal immaturity is a common finding in these prematur infants, and some full-term newborn infants. A theory is proposed for the causes of certain abnormalities observed in late life in children born prematurely. The exhibit also includes th demonstration of the equipment and techniques used in obtaining the chemical data from heel puncture and advocates th practicability of these simple procedures even in the smalle hospital.

### Equipment for Cerebral Palsy

Meyer A. Perlstein, Harry E. Barnett, and Jerome G Finder, Chicago.

The exhibit consists of miniature replicas of equipment use in the theory of cerebral palsied children, such as a push walker stand-up table, and relaxation chair. The equipment is manne by doll mannikins. There will also be descriptions of each piec of equipment.

## Section on Physical Medicine and Rehabilitation

The representative to the Scientific Exhibit from the Section on Physical Medicine and Rehabilitation is Arthur L. Watkins, Boston.

### Human Engineering—A New Therapeutic Tool

Howard A. Rusk, Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, New York. Lillian M. Gilbreth, Edith L. Kristeller and Julia S. Judson, Disabled Homemakers Research Project, New York University—Bellevue Medical Center, New York.

The exhibit shows self-help devices and home facilities for physically disabled women as an adjunct to medical care to preserve health or regulate energy expenditure in the maintenance of a home. Facilities pertinent to the performance of household duties by women with orthopedic difficulties and with altered physical capacity are demonstrated. Charts and posters relate the choice of facilities to energy expenditure, time expenditure, and body mechanics.

### Work Simplification for Cardiac Women—Model Kitchen

Margaret H. Austin and Anna May Wilson, Chicago, and John Bielawski and Frances Sanderson, Detroit, Mich.

The exhibit shows a full-size kitchen, demonstrating work simplification for cardiac women. Literature depicting educational projects as used for individuals, small groups, and clinic groups is available. The exhibit is sponsored by the Chicago and Michigan Heart Associations. The kitchen is from Women and Children's Hospital, Chicago.

### Physical Medicine and Rehabilitation in Acute Myocardial Infarction

Louis B. Newman, L. A. Baker, M. F. Andrews, and M. O. Koblish, Veterans Administration Hospital, Hines, Ill., and A. B. C. Knudson, Veterans Administration, Washington, D. C.

The exhibit shows physical medicine and rehabilitation activities, including vocational advisement and guidance and dietetic counseling, for patients with acute myocardial infarction. Objectives of this program, criteria for guidance in rehabilitation activities, and specific rehabilitation activities from the first week through the sixth week of hospital stay are included.

### An Improved Recovery Ward

S. N. Surks, C. H. Hall Jr. and H. I. Lipson, Veterans Administration Hospital, Brooklyn, N. Y.

The exhibit presents an operational plan for a recovery ward. A floor plan, drawings, and photographs demonstrate (1) advantages of close proximity to operating suite; (2) arrangement of beds for maximum visibility by nursing staff; (3) benefits of the reversed Gatch bed in airway management; (4) strategic distribution of essential equipment readily available to trained personnel; (5) transportation of patients; (6) essential records (vital signs, fluid balance, and order sheet); (7) prophylaxis, early recognition and treatment of respiratory complications; and (8) pain control.

### Current Developments in Prosthetics

Augustus Thorndike, Prosthetic and Sensory Aids Service, Veterans Administration, Washington, D. C.

The exhibit depicts some of the advances that have been made in the field of prosthetics. It includes a display of upper extremity prostheses currently available in the artificial limb program as well as a demonstration of improved techniques of fabrication, harnessing, alignment, and testing.

### Rehabilitation Procedures in Children with Physical Disabilities

George G. Deaver, Naomi Silverstein, and Donald Covalt, New York University-Bellevue Medical Center, Institute of Physical Medicine and Rehabilitation, New York.

The exhibit illustrates methods of evaluating and of programming treatment for the physical disabilities of children. Special gadgets and devices useful in the rehabilitation of children are included. The physical rehabilitation of children with spina bifida is demonstrated.

### Bilateral Effects of Unilateral Exercise

F. A. Hellebrandt, Sara Jane Houtz, and Arthur A. Rodriquez, University of Illinois College of Medicine, Chicago.

Experimental data illustrate the influence of localized exercise of one extremity on the strength and skill of homologous muscle groups of the contralateral unexercised side. The purpose of the exhibit is to demonstrate various methods of facilitating the voluntary performance of man, discuss the reflex mechanisms thought to be responsible for the phenomena observed, and indicate how these techniques are being applied clinically in the rehabilitation of the disabled.

### Postural Circulatory Disturbances

J. R. Garner, Atlanta, Ga.

This exhibit shows the comparative anatomy between man and mammals as regards his skeletal framework, the relationship of important viscera, and most especially the circulatory changes that man is required to meet. In most animals the viscera are practically on a single plane; in man they are superimposed one above the other, with some lying above the heart level, which means that the blood supplying the heart walls themselves, the lungs, brain, and upper extremities must be pumped against gravity. At the same time blood returning to the heart from below the heart level must be returned against gravity. Where proper posture is not maintained, additional stress is placed on the heart and the circulation, resulting in serious consequences in many cases.

### A Physical Medicine and Rehabilitation Hospital

Duane Schram, Gonzales Warm Springs Foundation, Gonzales, Texas.

A graphic relationship is shown between the general hospital and specialty hospital. An example of treatment given in each department on the specialty hospital panel is displayed. The departments shown are directly concerned with the over-all medical program.

### A Therapy Team for the Rehabilitation of Crippled Children and Adults

Lawrence J. Linck and Jayne Shover, National Society for Crippled Children and Adults, Inc., Chicago.

The exhibit presents a therapy team for the rehabilitation of crippled children and adults, in action. A team composed of physical therapist, occupational therapist, and speech therapist, under the direction of physicians, will demonstrate with patients special techniques that are a part of the total rehabilitation program of the crippled child and adult. The exhibit will picture some of the facilities operated by the Easter Seal Societies nationwide for the rehabilitation of crippled children and adults.

## Section on Preventive and Industrial Medicine and Public Health

The representative to the Scientific Exhibit from the Section on Preventive and Industrial Medicine and Public Health is Paul A. Davis, Akron, Ohio.

### Malaria

Ernest Carroll Faust, Tulane University of Louisiana, The School of Medicine, New Orleans.

The full story of malaria is presented, showing the importance of the disease to both patient and public. The details of the life cycle of the causative parasite are shown in scale models especially constructed in colored plastic. Details of laboratory diagnosis, chemotherapy, and control are also depicted.

### The United States Air Force Preventive Medicine Program.

Col. Fratis L. Duff, USAF (MC), Washington, D. C.

The exhibit shows the organization and activities of the program of preventive medicine in the United States Air Force Medical Service.

### What's in the Health Council Idea?

THOMAS D. DUBLIN, National Health Council, New York.

Sherlock Holmes invites you to step through his oversize magnifying glass to get the "low-down" on health councils—local, state, and national. The demonstration shows what councils are, who is in them, and what they do. Is something missing in your town? Maybe it is a health council.

### Tuberculosis Case Finding Survey

LEO V. SCHNEIDER, Tuberculosis Control Section, Tuberculosis Division, Veterans Administration, Washington, D. C.

Routine chest x-raying of patients admitted to hospital has been strongly advocated for many years as a practicable and useful procedure. Limited progress has been made up to the present in the development of a tuberculosis case finding program in general hospitals. The Veterans Administration Tuberculosis Case Finding Survey Program, with complete reporting of inpatients and personnel, was fully implemented in September, 1949; since then nearly 2,000,000 chest x-rays were taken and reviewed. The yield of unsuspected active tuberculosis from x-raying inpatients in general hospitals is at least four times and probably as much as eight times as high as that found in surveys of a cross section of the general population or of large industrial groups.

### Every Doctor's Office a Cancer Detection Center

ELOISE PARSONS, Cancer Prevention Center of Chicago Inc., Chicago.

The Cancer Prevention Center of Chicago has examined apparently healthy persons in order to determine whether cancer can be found before signs and symptoms are manifest. The results of examination of 31,000 healthy persons are depicted by posters, with special emphasis on breast, pelvis, skin, rectum, and chest.

### Glaucoma as a Factor in General Medicine

CONRAD BERENS and CHARLES P. TOLMAN, Ophthalmological Foundation, New York.

The exhibit shows a screening instrument for early detection of ocular hypertension by general practitioners and a plan for linical and other instruction in recognition of ocular pathology nder the preceptorship of local ophthalmologists.

### Modern Methods of Mosquito Control

J. LYELL CLARKE, Des Plaines Valley Mosquito Abatement District, Lyons, Ill.

This exhibit illustrates the world-wide distribution of the five principal diseases of man transmitted by mosquitoes: malaria, yellow fever, dengue, filariasis, and encephalitis, with the principal vectors of each disease. Mosquito control by natural enemies is shown; also the Anopheles mosquitoes, their breeding places, methods and success of control measures. A cage containing 10,000 flies, larvae, and pupae demonstrates vividly the way in which DDT kills mosquitoes, flies, and other insects. Cages of adult anopheline and culicine mosquitoes and mosquito larvae, mosquito eggs, and an aquarium containing Gambusia affinis, the top feeding minnow that feeds on mosquito larvae, are included, as well as samples of the various insecticides used for mosquito control and aniline dyes used for staining mosquitoes for flight studies.

### Blood Program of the American National Red Cross

DAVID M. W. GRANT and RUSSELL L. HADEN, American National Red Cross, Washington, D. C.

The exhibit depicts the technical projects involved in the Red Cross Blood Program. This includes the processes and uses of whole blood and its derivatives.

### The A-B-C of Arthritis—A Sample Exhibit of Patient Education

BRUNO GEBHARD, Cleveland Health Museum, Cleveland.

The main points of interest to the patient are the following aspects: 1. Can we afford arthritis?: totals of time, lost wages, medical expense, and taxes for relief. 2. What is arthritis?: plastic models showing changes in joints caused by the disease. 3. Joints: showing types and movements of various joints. 4. Facing the Facts: questions and answers. 5. Percentages of disability among arthritics: 88% can earn a living; 10% can do limited work, and 2% are totally disabled. 6. Affliction of all ages: Wax models showing crippling effects of arthritis.

### Lead Poisoning in Children

R. R. SAYERS, HUNTINGTON WILLIAMS, WILMER H. SCHULZE, CHARLES E. COUCHMAN, and EMANUEL KAPLAN, Baltimore City Health Department, Baltimore, Md.

The exhibit depicts the public health problem of lead poisoning in young children caused by the ingestion of lead containing paints. Supporting data over 21 years on the incidence and severity of the disease are shown. The symptoms and signs are presented, with emphasis of pica, x-ray appearance of long bones, and the finding of increased lead in the blood. The exhibit shows that in 1951, lead poisoning was second only to pneumonia and tuberculosis (all forms) as the cause of death in young children in Baltimore. A blood-lead analyses service to physicians, field environmental investigations, and educational methods are included as preventive measures.

### Pollen Prevalence and Pollen-Free Areas

OREN C. DURHAM, Abbott Laboratories, North Chicago, Ill.

The exhibit shows the comparative annual incidence of pollens from the following families and genera: ragweeds, grasses, chenopods, amaranths, sages (Artemisia), birch, oak, elm, sycamore (Platanus), maple, and juniper. An animated graph shows a typical local ragweed pollen season as compared with an atypical season in the same place. Sixteen portraits of hay fever plants are shown in color transparency. Latest air research pollen data, including a revised edition of the North American Ragweed Index, will be available.

### How Federal Meat Inspection Protects Health

N. R. BREWER, E. A. BENBROOK, J. V. LACROIX, C. H. PALS, J. R. PICKARD, and C. D. VAN HOUWELING, American Veterinary Medical Association, Chicago.

This exhibit depicts how federal meat inspection by veterinarians prevents the spread of animal diseases to man, assists in the control of animal diseases, and contributes to civil defense by providing a means for the early detection of diseases that may be used in biological warfare. The importance of sanitation in food processing is also emphasized as are the transmissible animal diseases.

## Section on Radiology

The representative to the Scientific Exhibit from the Section on Radiology is RICHARD H. CHAMBERLAIN, Philadelphia.

### Malignant Primary Tumors of Bone

GWILYM S. LODWICK, COL. WILLIAM L. THOMPSON, MC, and LENT C. JOHNSON, Armed Forces Institute of Pathology, Washington, D. C.

The exhibit presents neoplasms, distinguishing features of each being shown by gross anatomic, histological, and radiographic materials. Both typical and atypical forms are illustrated, the latter underlining radiographic resemblances of one type to another. All these tumors are malignant or potentially so.

### X-Ray Research and Protection

L. S. TAYLOR, H. O. WYCKOFF, U. FANO, H. W. KOCH, and S. W. SMITH, National Bureau of Standards, Washington, D. C.

The exhibit presents a correlation and summary of x-ray research and studies in x-ray protection conducted in the radiation laboratories of the National Bureau of Standards. Types of experiments and equipment are described as well as kinds of information developed for the use of the medical profession.

### Metastatic Malignancy and Simulating Lesions in Bones in Adult Males

Charles Oderr, Veterans Administration Hospital, New Orleans, La.

This is a roentgenologic exhibit in which the same body areas from different patients are exhibited in juxtaposition. Films are displayed in groups of four, representing different diseases in the same bones or different types or phases of the same disease in the same bones. Charts show the main classifications of roentgen findings according to age groups below 40, between 40 and 60, and over 60.

### Total Body Ionizing Radiation

Brig. General Elbert DeCoursey, MC, Armed Forces Institute of Pathology, Washington, D. C.

A series of colored photographic transparencies are presented from the collection of the Armed Forces Institute of Pathology depicting the effects of total body ionizing radiation.

### Preoperative and Postoperative Cholangiography

Everett L. Pirkey, Lawrence A. Davis, and Lawrence A. Pilla, University of Louisville School of Medicine, Louisville, Ky.

The exhibit presents a review of the indications and contraindications of cholangiography both during and after surgery. Brief discussions of the technique are given, with examples of both normal and abnormal roentgenograms obtained.

### Venography of the Lower Extremities, Pelvis, and Vena Cava: Proximal Injection Technique Using Buffered 70 Per Cent Urokon

William H. Boyce, Samuel A. Vest and John H. DeTar, University Hospital, Charlottesville, Va.

A technique for radiographic visualization of the veins of the lower extremities, pelvis, and vena cava by injection of the superficial dorsal and lateral veins of the penis is presented. This method is based in part on the physical properties of urokon (70 per cent) which will flow into a dependent vein in a retrograde manner to the point of obstruction. Pathologic changes in the venograms due to acute and chronic venous obstruction and valvular incompetence are demonstrated. Venograms from the normal individual by this and other techniques are presented for comparison.

### Detection of Concealed Thyroid Disease by Tracer Technique

Lawrence Reynolds, K. E. Corrigan, and H. S. Hayden, Harper Hospital, Detroit, Mich.

The exhibit shows the results obtained in 102 proved cases of carcinoma of the thyroid, 13 cases of brittle diabetics, 36 cases of uncontrollable cardiac disease, and 10 cases of Legg-Perthes disease.

### Ileocecal Valve Simulating Tumor of the Cecum

C. L. Hinkel, George F. Geisinger Memorial Hospital and Foss Clinic, Danville, Pa.

The exhibit centers about terminal ileum, the cecum and the ileocecal valve. Various modifications of ileocecal valves are shown in order to illustrate the roentgenologic demonstration and to facilitate recognition of these valves. Certain ileocecal valves simulate tumors of the cecum.

### Applicators for External Radium Therapy

Martin Van Herik, Robert E. Fricke, and Marvin M. D. Williams, Mayo Clinic, Rochester, Minn.

The exhibit shows applicators designed to fulfill two prime requisites: (*a*) maximum adaptability to lesions of various sizes and locations without sacrificing proper distribution of radiation and (*b*) minimum of radiation to persons handling them. They are made of transparent plastic with a minimum of metallic parts. Each applicator has two main parts: the base and the top. The top section, which may be circular, rectangular, or square, is essentially a tray with troughs to hold the radium tubes and a lid that fits over it. The base section, which also may be circular, rectangular, or square, has a central projection to receive the top section and is that portion of the applicator which is applied to the patient at leisure prior to application of the loaded top section. Typical applicators of various sizes are shown, as well as instruments used for handling them and photographs and models showing their use.

## Section on Surgery, General and Abdominal

The representative to the Scientific Exhibit from the Section on Surgery, General and Abdominal, is Walter G. Maddock, Chicago.

### Tumors of the Hands and Feet

Robert J. Booher and George T. Pack, Memorial Cancer Center, New York.

This is an exhibit of the benign and malignant tumors of the hands and feet, reviewing typical case histories as well as unusual lesions as histological detail. It covers a 13 year period with both three and five year follow-up statistics. Tumors of the skin with its appendages of those from the pigment bearing mechanism and the soft somatic parts are included.

### The Diagnosis of Breast Cancer

Louis P. River, Joseph Silverstein, John W. Tope, and Edward Kallal, Cook County Hospital and Stritch Medical School of Loyola University, Chicago.

The exhibit illustrates the management of the diagnosis of localized breast cancer. Emphasis is placed on the necessity for biopsy to distinguish early cancer from benign lumps, and the extent of clinical error in the differential diagnosis is indicated by figures showing tentative and final diagnosis in a series of 1,000 consecutive admissions to the Breast Tumor Clinic.

### Tumors of the Head and Neck, Except the Brain

James W. Hendrick, San Antonio, Texas, and Grant E. Ward, Baltimore, Md.

The exhibit deals with various tumors involving the head and neck, except the brain. Statistical material is presented. An evaluation is made of the various tumors of the head and neck, with an illustration of the various types. The method of therapy, whether radiological, surgical, or a combination, is given. Follow-up survey of the various types of treatment is given.

### Tumors of the Stomach

Samuel F. Marshall and Kenneth W. Warren, The Lahey Clinic, Boston.

This exhibit portrays a broad aspect of tumors of the stomach, both benign and malignant, and demonstrates by means of charts, x-rays, photographs, drawings, and tables, the classification, salient symptoms, diagnosis, and technique of their surgical treatment.

### Surgical Anatomy of the Portal System

John L. Madden, John M. Loré Jr., and Frank P. Gerold, St. Clare's Hospital, New York.

This exhibit presents representative color photographs and color transparencies of an anatomic dissection of the abdominal contents of 15 fresh necropsy specimens. These were prepared by the injection of neoprene latex into the abdominal aorta (red) and sigmoid veins (blue), respectively. The color photographs show in detail the anatomy of the portal system, its related arterial supply and associated organs, viz., stomach, duodenum, small and large bowel, liver, gallbladder, spleen, pancreas, and kidneys. In addition, the technique of this anatomic study will be described and the equipment used will be displayed.

### Practical Clinical Alimentation

Morton D. Pareira and E. J. Conrad, Homer G. Phillips Hospital and Washington University School of Medicine, St. Louis.

The exhibit presents clinical and metabolic studies of tube feeding in disease states and malnutrition. By use of small bore, soft plastic tubing and appropriate dietary mixtures, long-range feeding can be accomplished without discomfort to the patient and without adverse effects due to gastrointestinal irritation. The need and applicability of such enteral feeding is defined, and clinical results and quantitative metabolic observations are presented.

### Cortisone in (A) The Healing of Myocardial Infarcts and (B) The Prevention of Adhesions in the Abdomen, Chest, and Pericardium

Schayel R. Scheinberg, Aran Johnson, Robert A. Gerisch, and Harry C. Saltzstein, Harper Hospital, Detroit, Mich.

Myocardial infarcts were produced in dogs. Cortisone reduced the average size of the infarcts by 80 to 85% as compared to the controls. Arteriograms revealed a marked increase in the collateral circulation of the myocardium in the cortisone-treated animals as compared to the controls. Adhesions were produced in the abdomen, chest and pericardium by sprinkling dry USP talcum powder over the serosa and pleura and injecting a saline suspension into the pericardium. The cortisone-treated animals showed a reduction of 75% in the number of abdominal adhesions, 75 to 80% in thoracic adhesions, and a very marked reduction in the pericardial adhesions. No interference with wound healing was observed.

### Esophageal Diverticula

Frank H. Lahey, The Lahey Clinic, Boston.

The exhibit includes pharyngoesophageal diverticula, traction diverticula, and supradiaphragmatic diverticula. The results of experience with 335 cases is presented, with a follow-up on each.

### Studies in Technique of Intestinal Anastomosis—(A) Two Layer Technique; (B) One Layer Technique

Charles A. Hufnagel, Robert J. Coffey, Leonard W. Weyl, and John F. Gillespie, Georgetown University Hospital, Washington, D. C.

A series of intestinal anastomoses are shown during the various phases of healing. Single layer anastomosis, using silk and cotton, are compared to the two layer anastomosis using an inner layer of catgut. Gross specimens are shown imbedded in plastic blocks. Histology is shown by photomicrographs.

### Experimental Peptic Ulcers Due to Hyperfunction of the Gastric Antrum

Lester R. Dragstedt, Edward R. Woodward, Jose M. Zubiran, Allan E. Kark, Antonio Montalbetti, and Clemente Morel, University of Chicago, The School of Medicine, Chicago.

ormonal stimulation of gastric secretion as a result of food the stomach is mediated exclusively by the antrum. This phase f secretion is abolished if the antrum is excised or transplanted into the abdominal wall so that it does not come in contact with food. If the exteriorized *antrum is transplanted* into the duodenum as a diverticulum gastric secretion returns to the *normal* level. If the antrum is transplanted into the colon as a diverticulum, an excessive secretion of gastric juice results. This hypersecretion is hormonal in nature and persists even after the transplanted antrum is entirely denervated and its original blood supply removed so that it must be nourished exclusively by the colon. The hypersecretion of gastric juice resulting from transplantation of the antrum into the colon regularly produces gastroduodenal and gastrojejunal ulcers in experimental animals, which closely resemble the human lesion.

### Tryptic Enzymatic Débridement

Howard G. Reiser, Carl R. Limber, L. C. Roettig, and G. M. Curtis, Ohio State University College of Medicine, Columbus, Ohio.

The exhibit presents the basic in vitro and in vivo laboratory investigations and the early clinical observations in the use of purified proteolytic enzymes obtained from the mammalian pancreas. Two phases of the clinical applications are covered: (1) pleural empyema and fibrinopurulent-necrotic lesions of traumatic and microbiological origin and (2) aerosol applications in bronchial as well as bronchopulmonary disease.

### The Flat Film in the Differential Diagnosis of the Acute Abdomen

Marcus H. Rabwin, Beverly Hills, Calif.

Charts and transparencies of x-ray films demonstrate the value of the flat film in the differential diagnosis of acute abdominal conditions. Characteristic findings in the various types of intestinal obstruction, ruptured ulcers, paralytic ileus, peritonitis, intestinal volvulus, and pancreatitis are shown. The importance of this readily available diagnostic aid in the proper management of acute abdominal emergencies is graphically illustrated.

### Causes for Unfavorable Results Following Cholecystectomy

Manuel E. Lichtenstein and Anthony J. Nicosia, Northwestern University Medical School and Cook County Graduate School of Medicine, Chicago.

The exhibit shows illustrations and specimens of the extrahepatic biliary passages with their accompanying vessels. Unfavorable results following cholecystectomy may be classified into five groups: (1) incomplete diagnosis, (2) incomplete surgery, (3) accidents involving the extrahepatic biliary system, (4) postoperative complications, and (5) nonsurgical gallbladder disease.

### Treatment of Inguinal Hernia in Infancy

James Graham and A. R. Eveloff, Springfield Clinic, Springfield, Ill.

Surgical correction of congenital inguinal hernia is recommended as soon as the diagnosis is established. Surgical cure is dependent entirely on removal of the sac and not on reconstruction of the muscular and fascial structures composing the canal. *Infantile hernias differ from adult hernias in this respect. Removal of the sac is readily accomplished in the newborn,* so there is no advantage in postponing surgery. The varieties of congenital hernias are illustrated with wax models and drawings.

### A New Tube Used in the Treatment of Intestinal Obstruction

John W. Devine and John W. Devine Jr., Lynchburg, Va.

A new tube is shown that is used in the treatment of intestinal obstruction. The tube has an air vent that prevents the vacuum mucosal obstruction phenomena, thereby allowing for removal of large amounts of obstructed fluid. Case histories are shown where 10,200 cc. of material is removed from the obstructed small intestine in a 24 hour period. The tube will be shown in operation, demonstrating the minimum amount of nursing care necessary. A drawing with lights illustrates the simple principle of physics involved.

### Operative Cholangiography

Stanley O. Hoerr, C. R. Hughes, and Robert Perryman, Cleveland Clinic, Cleveland.

X-rays of the common bile duct made at the time the biliary tract surgery may be of great assistance to the surgeon in (1) aiding in the diagnosis of common duct pathology, including number and size of stones, tumors, narrowing due to pancreatitis, etc., (2) assuring the surgeon that the common duct has been cleared of stones, after operative removal from the common duct, and (3) assuring the surgeon that he is dealing with a normal common duct in patients who appear to have obstruction jaundice but in whom the jaundice is due to hepatic disease. The exhibit illustrates a simplified technique for performing cholangiography at the time of surgery and gives a number of illustrative cases.

### Meckel's Diverticulum

Thomas A. Shallow, Sherman A. Eger, and Frederick B. Wagner Jr., *Jefferson Medical College and Hospital*, Philadelphia.

This exhibit illustrates the varying clinical manifestations of Meckel's diverticulum, the difficulties in diagnosis, and the problems in treatment from a series of 75 cases. It will be shown that the grave complications frequently associated with Meckel's diverticulum transform its role from a mere surgical curiosity to one of importance in both acute abdominal emergencies and elective laparotomies. Incidental search for Meckel's diverticulum at laparotomy should be just as routine as for the appendix. If the diverticulum is found, it should be removed whenever possible, for it is a potential source of danger which can be eliminated with no appreciable risk

### The Surgical Cure for Hyperthyroidism

WILLARD BARTLETT JR., St. Louis University School of Medicine, St. Louis.

A case history study has been made of the records of patients seen in the past 20 years with persistent or recurrent hyperthyroidism following thyroidectomy. The tabulated data indicated that complete and permanent cure can be achieved by a radical, subtotal thyroidectomy such as that performed since 1932. The performance of total thyroidectomy is clearly not necessary to achieve ideal results. Postoperative hypothyroidism is not regarded as a complication, and its appearance is prevented by the routine administration of desiccated thyroid substance, the need for which is lifelong.

### Educational Activities

WALTER E. BATCHELDER and H. PRATHER SAUNDERS, American College of Surgeons, Chicago.

The exhibit shows the various educational activities of the American College of Surgeons.

### Surgical Lesions of the Esophagus

CHARLES B. PUESTOW, JAMES H. CROSS, and GEORGE A. OLANDER, Veterans Administration Hospital, Hines, Ill.

This exhibit displays the surgical lesions of the esophagus, preoperative and postoperative management, and surgical technique of esophagogastrostomy. The surgical lesions of the esophagus are described.

## Section on Urology

The Section on Urology has arranged for discussion of all the urologic exhibits at 10:30 a. m. Tuesday, Wednesday and Thursday.

The section exhibit committee consists of ROGER W. BARNES, Los Angeles, Chairman; RUBIN H. FLOCKS, Iowa City, and GEORGE E. EWELL, Madison, Wis.

### Treatment and Prevention of Kidney Stones by Increasing Protective Urinary Colloids

ARTHUR J. BUTT and JOSEPH Q. PERRY, Butt Medical Foundation, Pensacola, Fla., ERNST A. HAUSER, Massachusetts Institute of Technology, Cambridge, Mass., and JOSEPH SEIFTER, Wyeth Institute of Applied Biochemistry, Philadelphia.

The exhibit presents pictorial aspects of hyaluronidase used in the prevention and treatment of kidney stones, including colloids with hyaluronidase and other uses of hyaluronidase in urology.

### Plastic Procedures on the Urinary Bladder

ROGER W. BARNES, WILLIAM M. WILSON, STANLEY E. FARLEY, HENRY L. HADLEY, and R. THEODORE BERGMAN, College of Medical Evangelists, Los Angeles, Calif.

The exhibit consists of drawings and text explaining different plastic procedures on the bladder, including reconstruction of the lower segment of the ureter with a tube made from a bladder flap, reconstruction of the urethra with a tube from a bladder flap, construction of a suprapubic spigot with a tube made from a bladder flap, and demonstration of a method of enlarging bladder capacity by the use of an isolated segment of the bowel anastomosed to the bladder. Transplantation of the trigone into the large bowel for ureterosigmoidostomy is included.

### Subcapsular Nephrectomy

COL. J. C. KIMBROUGH, MC, and CAPT. W. H. MORSE, MC, Walter Reed Army Hospital, Washington, D. C.

The exhibit shows the history, indications, and technique of subcapsular nephrectomy, using drawings, photographs, charts, moulages, and x-ray films.

### A New Concept of Bladder Innervation and Its Clinical Application to Pelvic Surgery

LOWRAIN E. MCCREA and DONALD L. KIMMEL, Temple University Hospital, Philadelphia.

A reconstruction in clear plastic of the human pelvis shows the innervation of the bladder. A selected series of photomicrographs of the human embryo shows the course of the nerves. These are used as the basis for the reconstruction. A series of three transparencies in color shows the anatomic relationships in the adult. The management of the bladder following abdominoperineal proctosigmoidectomy is outlined.

### Pneumography as Applied to Urology

J. SIDNEY RITTER, A. A. JOHNSON, and WILLIAM H. SHEHADI, New York Polyclinic Hospital, New York.

The exhibit consists of a demonstration of Carrelli's method of direct perirenal insufflation, its advantages and disadvantages, as compared to presacral perirenal insufflation of oxygen. The delineation of nonopaque calculi and tumors is presented, together with x-ray photographs and apparatus for carrying out these procedures.

### Demountable Tidal Drainage Apparatus

LIEUT. COL. ROBERT B. ROWE, MC, Valley Forge Army Hospital, Phoenixville, Pa., and LIEUT. COL. JOHN F. CARNEY, MC, U. S. Army Hospital, Camp Pickett, Va.

A hospital bed and a Stryker frame are exhibited, each containing a dummy patient. To each of these a demountable tidal drainage apparatus is attached. The bed patient shows the initial simple model described in the October, 1951, article of the *United States Armed Forces Medical Journal.* To the Stryker frame is attached modifications for allowing this type of tidal drainage to be moved with the frame and to allow rotation of the frame without discontinuing the tidal drainage. Placards show the results obtained by use of this apparatus in paraplegic patients.

### The Effect of Banthine® on the Normal and Neurogenic Bladder

JACK LAPIDES and AUSTIN I. DODSON JR., University Hospital, Ann Arbor, Mich.

Drawings and posters demonstrate the physiology of normal urination and the physiopathology of the uninhibited neurogenic bladder. The mode and site of action of banthine® upon the nervous pathways of the bladder are illustrated, the effect of banthine® upon the normal and neurogenic bladder is shown, and a simple cystometer is exhibited.

### Physiology of the Ureterointestinal Anastomosis

ROGER BAKER, DUNCAN GOVAN, and GEORGE MILLER JR., University of Chicago, The School of Medicine, Chicago.

Following ureterointestinal anastomosis a large percentage of patients have hydroureter, hydronephrosis, renal calculi or uremia. This exhibit presents a three part study of the physiology of the ureterointestinal anastomosis which may form a better understanding of the subsequent secondary renal disease. 1. If the anastomosis is well-formed, it is patent; a patent stoma may permit reflux of fecal contaminated urine from the rectum back to the kidney if the intrarectal pressure exceeds the intraureteral pressures. 2. It has been demonstrated that scarring about the ureter as it passes through the bowel wall causes a stricture with secondary hydronephrosis. A method to modify this fibrous tissue reaction by use of cortisone is presented. 3. It has never been determined whether it is physiological to cut a ureter. A study of ureteral action potentials is presented.

### Discussion of Urology Exhibits

There will be a discussion of the exhibits in the Section on Urology. The following discussants will participate:

**Tuesday, June 10**

10:30 a. m. JAMES W. MERRICKS, Chicago.

**Wednesday, June 11**

10:30 a. m. WILLIAM F. BRAASCH, Rochester, Minn.

**Thursday, June 12**

10:30 a. m. NELSE F. OCKERBLAD, Kansas City, Mo.

## MISCELLANEOUS EXHIBITS

### Voluntary Health Insurance

George W. Cooley and Howard O. Brower, Council on Medical Service, American Medical Association, Chicago.

The exhibit displays the types of voluntary health insurance plans available to the American people; the percentage of eligible persons enrolled in each state; some of the characteristics of the voluntary plans; and progress being made in enrolling individuals, in increasing benefits and broadening scope of coverage.

### Medical Education

Donald G. Anderson, E. H. Leveroos, F. H. Arestad, Francis R. Manlove, and Warren R. Von Ehren, Council on Medical Education and Hospitals, American Medical Association, Chicago.

The exhibit of the Council on Medical Education and Hospitals displays data on medical education, registration and approval of hospitals, training of interns and resident physicians, technical hospital personnel, and medical licensure. Data are included pertaining to lists of approved medical schools, hospitals approved for internships and residencies, and approved technical schools.

### Testing the Drinking Driver

Herman A. Heise, Committee on Tests for Intoxication, National Safety Council, and Committee on Medicolegal Problems of the American Medical Association, Milwaukee, Wis.

This exhibit shows the effect of alcohol related to its percentage in body fluids. Several types of apparatus which are used to determine this percentage of alcohol are presented.

### Blue Shield Medical Care Plans

*Frank E. Smith, Kenneth E. Trim, and Betty B. Horton,* Blue Shield Medical Care Plans, Chicago.

The exhibit presents the story of enrollment growth, financial status, and extent of physician participation in Blue Shield. The record of frequency and cost of medical and surgical services, identified by type of procedure and classification of service, are shown.

### A System for Avoiding Errors in Medical Gas Administration

Helen V. Pruitt, American Hospital Association, Chicago.

The exhibit describes the system approved by the American Hospital Association, the American Society of Anesthesiologists, and the Compressed Gas Association aimed to prevent errors in 'cal gas administration. The system for preventing erroneous hange of medical gas cylinders is built around a series of ing pins and holes. The holes are drilled in the body of the e that comes with the cylinder. For any one gas there is ly one combination of pins and holes. Unless the right cylinder is connected, the holes and pins will not match and the two parts will not fit together.

### Kentucky State Medical Historical Exhibit (Dr. Ephraim McDowell Memorial)

Charles A. Vance, Mrs. Walker Owens, and Mrs. E. L. Henderson, Louisville, Ky.

An exhibit of paintings shows 100 years of medical progress in Kentucky. Twelve shadow box pictures in oil and water colors are presented.

### A Semiautomatic Aseptic Surgical Camera

Leonard A. Julin, Mayo Clinic, Rochester, Minn.

The exhibit includes a description and demonstration of a specially designed camera for photographing surgical fields under aseptic conditions. During the performance of operations the surgeon may encounter unusual conditions of which he would like a permanent pictorial record, but usually an artist or a photographer is not available. This camera can be available at all hours and can be used by persons unskilled in photography. It can be used directly over a surgical field to record detail in a deep cavity. The exhibit includes color pictures made with the camera.

### Legible Lantern Slides

Richard M. Hewitt, Mayo Clinic, Rochester, Minn.

The exhibit shows that the fewer the characters the larger each character appears on the screen. Four methods are presented whereby the number of characters can be reduced.

### Medical Photography

Maria Ikenberg, Inez Porter, Gene Crunelle, and Charles Lindsay, Biological Photographic Association, Inc., New York.

The exhibit emphasizes medical illustration—a modern aid to medicine, depicting exhibit preparation, clinical photography, photomicrography, hospital public relations, graphic illustration, medical motion pictures, photography of gross specimens, and radiograph copying. A few selected photographs representative of lighting techniques applied in medical photography are presented. Questions concerning equipment and methods employed will be answered.

### Nursing Service in Action— Veterans Administration Hospitals

R. M. Gartland, M. S. Williamson, and N. C. Beckman, Veterans Administration Hospital, Hines, Ill.

The exhibit shows selected views of nursing service in action and gives a picture of nursing in the specialties as well as in the general medical, surgical, operating room, central service, and other areas.

### A Functional Nursing Station

George T. Harrell Jr., North Carolina Baptist Hospital and Bowman Gray School of Medicine, Winston-Salem, N. C.

Diagrams and photographs illustrate how an old nursing station in the present hospital was rearranged. A chart illustrates the plan for the nursing station on the medical floor in the new hospital wing under construction. A description of the principles involved and some of the detailed measurement will be distributed.

## MOTION PICTURES

The official motion picture program will be presented in Room 631 in the Scientific Exhibit on Navy Pier. Films will be run continuously from Monday morning to Friday noon, each film being shown once each day. In many instances, the authors will be present to discuss their films.

The motion picture program is presented in cooperation with the Committee on Medical Motion Pictures of the American Medical Association. Information concerning films on the program and other medical films may be obtained from Ralph P. Creer or Owen H. Johnson in Space 630, adjoining the motion picture theater.

### Surgical Approaches to the Hip Joint

Leroy C. Abbott, Veterans Administration, San Francisco.

Animated diagrams show the anatomy of the anterior and posterior aspects of the hip joint. Operations employing approaches to the anterolateral, straight lateral and posterolateral aspects of the joint are shown. Each is recapitulated in animation. Sound, 35 minutes.

### Foreign Bodies in the Air and Food Passages

Paul H. Holinger and Kenneth C. Johnston, St. Luke's Hospital, Children's Memorial Hospital and Research and Educational Hospital of the University of Illinois College of Medicine, Chicago.

This picture shows the endoscopic appearances of various foreign bodies in the air and food passages. Foreign bodies are placed in the tracheobronchial tree and esophagus of anesthetized dogs to illustrate the problems of bronchial obstruction and to illustrate techniques of removal of foreign bodies. Brief histories and the endoscopic appearance of foreign bodies in the air and food passages of patients illustrate the problems as they are seen in the human. Silent, 15 minutes.

### The Action of N-Allylnormorphine Before Birth

Franklin F. Snyder, Boston Lying-in Hospital, Boston.

Starting with breathing fetuses under direct observation within the unopened rabbit uterus, N-allylnormorphine is injected into the mother which counteracts the depressant effects of morphine. Within three minutes fetal respiration and reflexes are again normal. Similar striking results are shown following fetal depression induced by demerol® or methadone. Even in adults, N-allylnormorphine affords by far the most effective treatment of overdosage with these drugs. Clinical experience to date indicates similar antidotal action in patients. Silent, 14 minutes, with discussion by author.

### A Concept of Maternal and Neonatal Care

Preston A. McLendon and John Parks, George Washington University School of Medicine, Washington, D. C.

This film shows in a broad spectrum the approach to and care of the pregnant mother and her newborn infant. A continuity of care from the first prenatal visit through delivery, hospital stay, and return home with a new baby is presented. The interrelations of the medical team of obstetrician, pediatrician, nurses, and hospital administrator are presented to illustrate the part they play in maintaining safety and to demonstrate their influences upon the confidence and comfort of a new family. Sound, 25 minutes, with discussion by author.

### Oxygen Dosage and Techniques

Thomas W. Nale, Linde Air Products Company, New York.

The clinical conditions for which oxygen is frequently prescribed are reviewed; attention is called to the commoner signs and symptoms of anoxia, and the concentrations of oxygen used to overcome or relieve the anoxia are discussed. The apparatus and techniques required to administer various percentages of oxygen to different types of patients are demonstrated. A short section on emergency oxygen therapy is included. Sound, 28 minutes.

### Tolserol® (Mephenesin) in Rheumatic Diseases

Richard T. Smith, E. R. Squibb & Sons, New York.

The film shows the mechanism of action of tolserol® in relation to rheumatic disorders and the muscles spasm-pain-muscle spasm cycle. Rheumatoid spondylitis, lumbago, fibrositis, acute stiff neck, and acute bursitis cases are shown. Each case is presented individually, with the condition before the administration of tolserol,® then the effect of the drug on the condition. The dosages used with the various patients, the duration of action of the drug, and other medical points significant to its use as an adjunct in the treatment of the condition are presented in the film. Sound, 18 minutes.

### The Diagnosis of Poliomyelitis

National Foundation for Infantile Paralysis, New York.

The film follows a doctor from the moment he is called in to treat a child with grippe-like symptoms until he arrives at his final diagnosis of poliomyelitis. The film begins with the initial visit to the child's home, taking of case history, and physical examination. It reviews, by means of actual clinical examples, the outstanding symptoms of spinal and bulbar polio that should be looked for during the physical examination and presents examples of conditions with which poliomyelitis is most frequently confused. In addition, the film gives graphic information on the pathology of polio and significance of findings in the cerebrospinal fluid. Sound, 30 minutes.

### Glaucoma—What the General Practitioner Should Know

Franklin M. Foote and Willis S. Knighton, National Society for the Prevention of Blindness, Committee on Glaucoma, New York.

This film explains the mechanism of glaucoma, early signs and symptoms which will aid in the diagnosis of the condition, and an explanation of the rationale of treatment. It has been prepared particularly for the information of the general practitioner. Sound, 22 minutes, with discussion by author.

### Transplantation of Superior and Inferior Recti for Lateral Rectus Paralysis

Conrad Berens and Louis J. Girard, Ophthalmological Foundation, Inc., New York.

The film describes indications for transplantation and the surgical technique, which not only utilizes the lateral halves of the vertical recti muscles and the overlying Tenon's capsule but also shifts the nasal halves of these muscles temporally to the vertical meridian. Preoperative and postoperative movement of a patient's eyes are shown. Silent, 16 minutes, with discussion by author.

### Gastric Resection with Ante-Colic Anastomosis for Duodenal Ulcer

Douglas Donath, Pasadena, Calif.

This motion picture illustrates the technique of performing an anterior Polya type of subtotal gastrectomy for duodenal ulcer. A maneuver of entering the omental bursa is shown as a means of preventing damage to the transverse mesocolon. The method of ligating the vessels along the gastrocolic omentum is illustrated. Details of ligating the vessels along the lesser curvature of the stomach are shown. A method of closure of the duodenal stump is shown in detail. A means of isolating and marking the antemesenteric border of the jejunal loop, and making the gastrojejunostomy are shown in detail. Silent, 18 minutes.

### Splenectomy

Philip Thorek, University of Illinois College of Medicine, Chicago.

This case presents a patient with a marked enlargement of the spleen associated with panhematopenia. The technique of splenectomy is shown in detail. Primary ligation of the splenic artery as an aid to surgical mobilization is demonstrated. Surgical anatomy is stressed, and the importance of the splenic pedicle as the key structure is emphasized. Colored illustrations amplify the film. Silent, 23 minutes, with discussion by author.

### Pyloromyotomy for Infantile Pyloric Stenosis

John L. Madden, St. Clare's Hospital, New York.

The physiological effects of congenital hypertrophic pyloric stenosis are illustrated by animated diagrams, as are the general features of the Fredet-Weber-Ramstedt operation of pyloromyotomy. A typical case is shown, and the standard surgical procedure is followed, wherein the pyloric tumor is incised longitudinally down to the layer of mucous membrane, which is then free to herniate up through the incised musculature. The postoperative course in the patient shown was uneventful. Sound, 17 minutes.

### Modified Halsted Operation for Repair of Indirect Inguinal Hernia

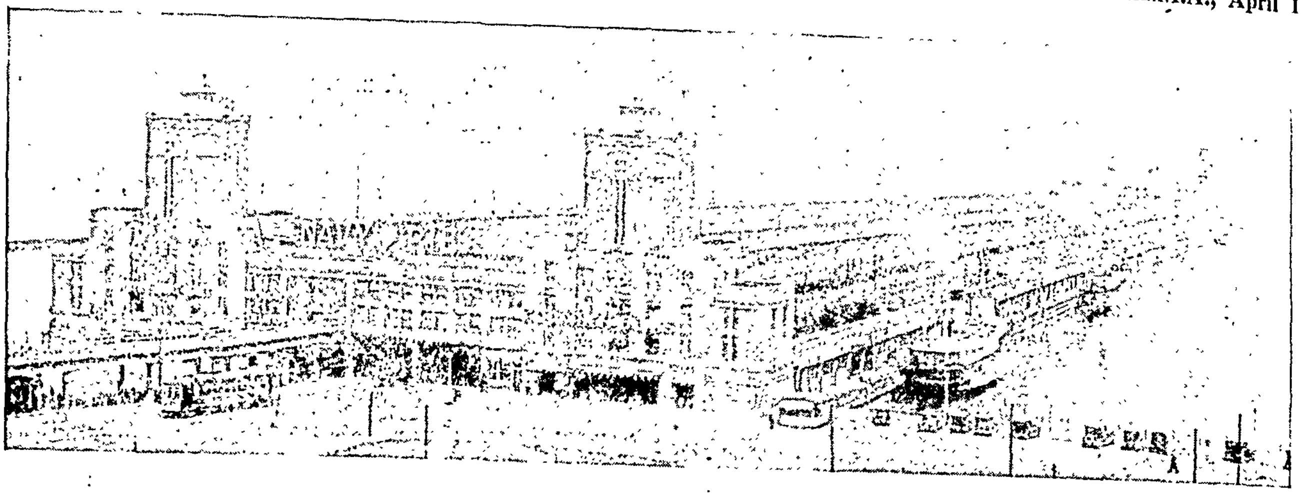
Kenneth C. Sawyer, Presbyterian Hospital, Denver.

This film illustrates a technique for the repair of an indirect hernia. Silent, 12 minutes, with discussion by author.

### Anorectal Divulsion Versus Pectenotomy

Manuel G. Spiesman and Louis Malow, Chicago Medical School, Chicago.

The film shows the origin and location of a pathological fibrous connective tissue band in the anal canal, called the pecten band, which gives rise to anal tightness and is commonly found in conditions like fissure in ano, cryptitis, papillitis, fistula, and pruritus ani. The relief of this condition is shown by a surgical operation called pectenotomy in contrast to an unsurgical traumatic and unnecessary procedure called divulsion. The cutting of the sphincter muscles is shown to be unnecessary and inadvisable. The results with this operation have been lasting. Silent, 10 minutes.



# THE TECHNICAL EXPOSITION

*Timely Displays of More Than 375 Firms*

## NEW REMEDIES
## LATEST BOOKS • NEW INVENTIONS
## IMPROVED APPARATUS and INSTRUMENTS
## SPECIAL PURPOSE FOODS

The Technical Exposition of the present day is a far cry from the commercial exhibit of a half- or even a quarter-century ago. Essentially, it is a post-graduate opportunity to catch up on what's new in modern practice and to renew acquaintance with the long established aids.

Visitors to the Technical Exposition this June will find perhaps the largest and most varied collection of articles for physicians' use ever assembled in one place. Stretched over the vast expanse of Navy Pier, orderly exhibits of more than 375 firms will offer much of immediate interest—new scientific knowledge . . . new inventions . . . new techniques . . . new improvements—presented by skilled technicians, scientists, engineers, researchers, or other informed personnel.

Many of the recent discoveries, such as the new hormone preparations, newer tissue enzymes, hypotensive agents, skeletal muscle relaxants, less toxic sulfonamides, and new local anesthetics are included. New diagnostic developments are generously represented, as are new instruments for virtually every branch of medicine and surgery. From the medical book exhibits, one will gain a fund of information almost impossible to secure any other way.

Since the scientific exhibits, section meetings, medical motion pictures and color television programs are held on Navy Pier, physicians will find it unusually convenient to visit the Technical Exposition at any time. Leisurely, unhurried visits every day should prove instructive, profitable, and pleasurable. The exhibits will be open each day from 8:30 a. m. to 6:00 p. m., closing Friday at noon. On this and the following pages are brief descriptive items from most of the exhibitors, telling you what may be found at their respective exhibits.

Thos. R. Gardiner,
*Business Manager and Director of Technical Exhibits*

## BOOKS

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### A. M. A. Publications
### Booth A-77

Check over the list of A. M. A. Special Journals and other publications displayed in the booth, and take with you for future reference a copy of the catalog, "1952 Scientific Publications." While you are at the booth, look at your listing in the *American Medical Directory* and give the attendant a record of any changes in address or specialty to be made for the next edition, tentatively scheduled for publication early in 1953.

### A. M. A., Vol. 3—Selected Questions and Answers
### Booth D-124

This book contains authoritative answers by experts to nearly a thousand difficult questions sent in by practicing physicians throughout the United States and published in the Queries and Minor Notes department of The Journal. It contains up-to-date information in practically all fields of medicine which would be difficult to find elsewhere. Volume 3 of *Selected Questions and Answers* will be of great help to busy practitioners.

### American Diabetes Association
### Booth D-136

American Diabetes Association displays its new official publication, *Diabetes*, The Journal of the American Diabetes Association, which contains important information about the nature, diagnosis, and treatment of diabetes and its complications. Also on exhibit are *Proceedings* of the American Diabetes Association, published annually for ten years (1940-50), and the well-known bimonthly magazine for the diabetic patient, A. D. A. *Forecast.*

### Americana Corporation
### Booth B-124

Booth B-124 features the Mid-Century Printing of the *Encyclopedia Americana.* In addition to this well-known reference authority, Americana is also showing the Fortieth Anniversary Edition of the *Book of Knowledge*—an "American Tradition" in children's reference works.

### Appleton-Century-Crofts, Inc.
### Booth C-8

The new *Clinical Interpretations of the Unipolar Electrocardiogram* by Dr. Joseph F. Barker of Washington, D. C., is the featured title in the Appleton-Century-Crofts exhibit. Advance proofs of forthcoming new editions of Cole & Elman's *Textbook of General Surgery* and Smith & Conant's *Zinsser Textbook of Bacteriology* are also available for examination.

### Association of American University Presses
### Booth C-39

Distinguished for authoritative content and excellence of editorial work, the books of University Presses claim enviable rank among nonfiction works. The exhibiting of books from University Presses is an out-growth of the Association of American University Presses. Each Press represented is a separate publishing company producing medical, technical, and scholarly works as well as general books of interest to all. In this exhibit of University Presses you may find many books for your library.

### The Blakiston Company
### Booth C-11

Among the new books on display at the Blakiston booth are Bernstine and Rakoff's *Vaginal Infections and Infestations;* Mettler's *Psychosurgical Problems;* Blakiston's *Illustrated Pocket Medical Dictionary*—excellent for the office nurse; and Goodman's *International Health Organizations and Their Work.* Other highlights include such popular practitioners' books as Harrison's *Principles of Internal Medicine* and Grant and Estes' *Spatial Vector Electrocardiography.* Advance material on Hurst and Doyle's *Atlas of Vector Cardiography* is available for inspection.

### F. A. Davis Company
### Booth D-86

At the F. A. Davis exhibit, the New Looseleaf *Cyclopedia of Medicine, Surgery and Specialties* is being shown for the first time in its entirety. You are invited to see this outstanding work of over 800 doctors throughout the world who have contributed. A complete line of medical textbooks is also displayed.

### Encyclopaedia Britannica, Inc.
### Booths A-66, D-54

Encyclopaedia Britannica announces the release of their 1952 edition—complete with new population figures based on the 1950 census. This is said to be the biggest revision of *Encyclopaedia Britannica* in a quarter of a century. *Britannica* in several bindings, with yearbook and other services, is available for inspection in booths A-66 and D-54.

### Grune & Stratton, Inc.
### Booths A-1, A-3

Many new publications in the Grune & Stratton exhibit will interest the practitioner and specialist alike. Included are the new series, *Modern Medical Monographs* comprised of four publications on cardiology by Irving S. Wright, Hermann Blumgart, Myron Prinzmetal and Carl J. Wiggers; Fabricant's *Modern Medication of the Ear, Nose and Throat;* Menninger's *A Manual for Psychiatric Case Study;* Benda's *Developmental Disorders of Mentation and Cerebral Palsies;* and Bronisch's *The Clinically Important Reflexes.*

### Paul B. Hoeber, Inc.
### Booth 9

New books for the family physician keynote the Hoeber-Harper display: Stewart's *Cardiac Therapy,* Von Oettingen's *Clinical Guide to Poisoning,* the new (2nd) edition of *Cantor's Ambulatory Proctology,* and the new (3rd) edition of Bierman & Licht's *Physical Medicine in General Practice,* all shown for the first time. Among distinguished specialty books are Palmer's *Esophagus and Its Diseases,* the 2nd edition of Glasser, Quimby, Taylor & Weatherwax's *Physical Foundations of Radiology,* and the Milbank Symposium *Biology of Mental Health and Disease.* The year 1952 is said to mark the largest and most important publishing program in this firm's history.

### Lea & Febiger
### Booth B-81

Schedule plenty of time to look over the Lea & Febiger display of such outstanding new books and new editions as: Herbut, *Urological Pathology* (2 volumes); Master, Moser and Jaffe, *Cardiac Emergencies and Heart Failure;* Ritvo and Shauffer, *Gastrointestinal X-Ray Diagnosis;* Collins, *Anesthesiology;* Town, *Ophthalmology;* Lewin on *The Knee;* Warren and LeCompte, *Pathology of Diabetes Mellitus;* Musser-Wohl, *Internal Medicine;* Levinson and MacFate, *Clinical Laboratory Diagnosis;* Eller and Eller, *Tumors of the Skin;* and many other books of current clinical importance.

### Life and Health
### Booth A-114

This national health journal is exhibited as an ideal reception-room magazine for your office, whether you are in general practice or a specialty. *Life and Health* offers the patient ethical information on health. Its tips on child care and menu planning and articles on common diseases may save you valuable time in explaining those sundry complaints of the inquisitive patient. A free copy of *Life and Health* is waiting for you at the booth.

### J. B. Lippincott Company
### Booths A-12, B-11

J. B. Lippincott Company presents for your approval a display of professional books and journals geared to the latest and most important trends in current medicine and surgery. These publications, written and edited by men active in clinical fields and teaching, are a continuation of more than 100 years of traditionally significant publishing.

### The Macmillan Company
### Booth B-46

All doctors attending this meeting—their families too—will want to visit the Macmillan booth. A number of new and interesting medical titles and new editions of established medical classics are available for inspection. In addition to the large selection of professional titles, there are books of general interest to you and members of your family.

### McGraw-Hill Book Co., Inc.
### Booth 12

A special feature of McGraw-Hill's exhibit of new books—covering a wide field of interest—is a group of medical texts "just off the press." Included are: Arruga's *Ocular Surgery,* Houssay's *Human Physiology,* De Vries' *German-English Medical Dictionary,* Osborn's *Psychiatry and Medicine,* and Slobody's *Survey of Clinical Pediatrics.*

### The C. V. Mosby Company
### Booth B-29

Many new and interesting full volumes will be found at the Mosby booth, where you are invited to browse at your leisure. Some of the books available for investigation are: Lichtenstein, *Bone Tumors;* Duke-Elder, Volume 5, *Textbook of Ophthalmology;* Behrman, *Hair and Scalp;* Francis, *Human Pelvis;* Dieckmann, *Toxemias of Pregnancy;* Walker, *Physical Diagnosis;* Pascal, *Visual Optics;* Dodson and Gilbert, *Synopsis of Genitourinary Diseases;* and many others.

### Oxford University Press, Inc.
### Booth A-74

In the Oxford display, special attention is called to the following new books and new editions: Bull, *X-Ray Interpretation;* Wartenberg, *Hemifacial Spasm;* Ellman, *Diseases of the Chest;* Girdlestone, *Tuberculosis of Bone and Joint;* Florey, *Clinical Application of Penicillin;* Davidson, Smithers and Tubbs, *Diagnosis and Treatment of Intrathoracic New Growths;* Smith, *The Kidney;* Cunningham, *Textbook of Anatomy;* Brain, *Diseases of the Nervous System;* Bramwell, *Approach to Cardiology;* Murray, *Some Common Psychosomatic Manifestations;* Blotner, *Diabetes Insipidus;* Hill, *Principles of Medical Statistics;* Wright, *Applied Physiology.*

### Philosophical Library, Inc.
### Booth D-136

Of their recent publications, the Philosophical Library feature the following titles: Olan R. Hyndman, *The Origin of Life and the Evolution of Living Things;* M. F. Cleugh, *Psychology in the Service of the School;* Dr. Charlotte Wolff, *The Hand in Psychological Diagnosis;* James Clark Moloney, *The Battle for Mental Health;* Herta Loewy, *The Retarded Child;* and A. Musgrave Horner, *Speech Training.*

### W. F. Prior Co., Inc.
### Booth D-11

A few moments spent at booth D-11 may be profitable to owners and non-owners of Prior publications. The revising and remaking of their standard loose-leaf references are graphically described. The prodigious amount of revised text that has been published for Tice's *Practice of Medicine,* Lewis' *Practice of Surgery,* Davis' *Gynecology and Obstetrics,* and Brennemann's *Practice of Pediatrics* demonstrate to visitors what epochal changes have occurred in medicine during the past few years.

### W. B. Saunders Company
### Booths 1, 3, 5

Some of the new Saunders Books on display in the front lobby, North Section, near Physicians Registration, include: a volume on *Recent Advances in Medicine and Surgery* from the Graduate School of the University of Pennsylvania, Leopold's *Physical Diagnosis,* Graybiel & White's *Electrocardiography* (New 3rd Edition), Munro's *Trauma of the Nervous System,* New *Mayo Clinic Volume,* 1952 *Current Therapy,* Shaffer & Chapman's *Cardiology,* Bland's *Fluid and Electrolyte,* and many others you have been considering.

### State Journal Advertising Bureau
### Booth A-10

The State Journal Group, representing 39 state medical societies, is comprised of 34 state medical journals with the same advertising standards as publications of the A. M. A. Prospective advertisers are invited to stop at the S. J. A. B. booth to secure copies of the new Rate Schedule which presents current rates and the Budgets page outlining 29 space plans for coverage in the entire group with its circulation of 133,371. Also on display are sample copies of the 34 journals and the brochure, Advertising Service, describing services performed by the Bureau for both advertisers and advertising agencies.

### Student American Medical Assoc.
### Booth C-147

The exhibit of the Student American Medical Association consists of an illuminated map indicating the extent to which this Association has grown. Another portion of the display utilizes a "lift the tab" technique explaining the benefits available and objectives of the Association. A souvenir edition of *The Journal of the Student American Medical Association* is available for distribution.

### Charles C Thomas Publisher

**Booth 11**

Physicians will find here an impressive presentation of the eighty-four new books published in 1951 and thirty-five published in the first six months of 1952 by Charles C Thomas, Publisher. Featured are Lowrie's *Gynecology;* Rommer's *Sterility;* Hamby's *Intracranial Aneurysms;* Ver Brugghen's *Neurosurgery in General Practice;* and Greenblatt's *Office Endocrinology*, Fourth Edition. All four volumes of Steindler's *Postgraduate Lectures on Orthopedic Diagnosis and Indications* are ready. Over 140 titles in the American Lecture Series and the Bannerstone Series are on display.

### Today's Health

**Booth A-75**

Take advantage of this opportunity to look over a copy of *Today's Health* Magazine—the publication recommended to physicians for their reception room by a recent resolution of the House of Delegates. The attendant in the booth will send a copy to your home or office without obligation. See for yourself how *Today's Health* can give your patients and friends a better understanding of your work—how it can help to discourage self-medication and to instill faith in scientific medicine.

### The Williams & Wilkins Company

**Booth D-4**

The Williams & Wilkins exhibit offers you an opportunity to inspect this firm's important 1952 publications. Twelve new editions and fourteen new books have been published this year. Arranged for your convenient examination are latest editions of Miller (formerly Parker), Grulee and Eley, Novak, Watson-Jones, and Armstrong. Important new books include: Cowdry, *Ageing;* Forbus, *Reaction to Injury*, Vol. II; Walker, Boyd and Azimov, *Bio-chemistry and Human Metabolism;* Schaffer, *Introduction to Cardiography;* Dawber and Hawes, *Chest Diseases;* and Marriott, *Medical Milestones.*

### The Year Book Publishers, Inc.

**Booth A-44**

Year Book is displaying its entire list including the largest group of new books and new editions this publisher has ever presented at an M. A. meeting. Featured are: the new ooks of Operative Surgery—Welch's *Sur- f Stomach and Duodenum*, Greenhill's *cal Gynecology*, and Johnson & Kirby's me on the chest; new manuals and monoraphs: Moyer's *Fluid Balance*, Youmans' *Basic Medical Physiology*, Hughes' *Office Management of Ocular Diseases*, Wartenburg's *Office Neurology*, Parmelee's *Management of the Newborn*, Potter's *Pathology of the Fetus and Newborn*, new 2nd edition of Wright's *Vascular Diseases*, new 3rd edition of Cullen's *Anesthesia;* and the current series of 14 Annual Medical Year Books.

### Zeco Publishing Company

**Booth A-36**

Thousands of doctors throughout the world have expressed interest in a new book recently published by the Zeco Publishing Co., Chicago, entitled "How to Improve Your Sexual Relations"—as evidenced in the mail orders received as the result of full-page advertisements in THE JOURNAL A. M. A. The advertisement—published in the November 24, 1951, and January 26, 1952, issues—carried an introductory offer especially for doctors of two copies for $1.00. On doctors' prescriptions only, the booklet is offered to the public at $1.00 a copy. Written by Dr. Edwin W. Hirsch, the 64-page booklet is cross-indexed for quick reference and is described as a means to save doctors many hours of discussion with patients.

## DIAGNOSTIC EQUIPMENT

### Allergy and Medical Products Co.

**Booth D-142**

The Biederman Inhaler Test, one of the newer diagnostic developments is seen here. You simply have the patient inhale the substance, and observe whether allergy signs or symptoms develop. Reaction usually appears in three minutes or less. Volatile constituents of perfumes, and other cosmetics, as well as drugs and simple chemicals may be tested by this method. Drugs and simple chemicals that ordinarily give negative skin tests sometimes give positive nasal reactions.

### American Cystoscope Makers, Inc.

**Booths A-43, A-45, A-47**

Representatives of American Cystoscope Makers, Inc. welcome an opportunity to demonstrate the complete line of instruments, manufactured by this exhibitor. An interesting assortment of esophagoscopes, bronchoscopes, gastroscopes, and a variety of urological diagnostic instruments form a part of this display.

### W. A. Baum Co., Inc.

**Booth A-42**

The newest in bloodpressure equipment is shown by W. A. Baum Co., Inc.: Lifetime Baumanometers for nearly every need; the Phlebaumanometer, for measuring venous bloodpressure; and a brand new Sani-Genic bloodpressure cuff, which incorporates features never available before. See and try this new cuff yourself. Representatives are on hand to discuss your special problems and requirements for bloodpressure apparatus.

### Bausch & Lomb Optical Co.

**Booths A-49, A-51, A-53**

Interest in the B&L exhibit centers on the enlarged Kodachrome transparencies of fundus pictures taken with the Bausch & Lomb Retinal Camera. The transparencies are mounted in an illuminated display fixture so that detail can be fully appreciated. The Retinal Camera itself may be examined as well as recent developments in modern ophthalmic, diagnostic, and refracting equipment. Doctors will also have an opportunity to examine the new B&L Dynoptic Medical Microscopes, with built-in illumination; research microscopes; phase contrast accessories, for examining unstained specimens under a microscope; a photoelectric colorimeter; and other important equipment.

### The Beck-Lee Corp.

**Booth B-64**

The Beck-Lee display shows their latest and finest developments in electrocardiographs. The Cardi-All, new light weight direct writer with many features—compamatic circuit, automatic stylus protection, patient fused—is presented. Beck-Lee also exhibit the Model E Quartz String Galvanometer Type Electrocardiograph, as well as the Quartz String Instrument with the Record Automatic Camera. Trained Technicians are in attendance to thoroughly demonstrate the convenience and dependability of these instruments and to discuss these many unique features.

### Cambridge Instrument Co., Inc.

**Booth A-125**

The new Cambridge Multi-Channel Direct-Writing Recorder, operating room cardioscope, and an educational cardioscope are some of the important developments on view here. Others include the Simpli-Scribe model direct-writing portable electrocardiograph; the Simpli-Trol portable and mobile models of the Cambridge Standard String Galvanometer Electrocardiographs and Electrocardiograph-Stethograph-Pulse Recorders; the Cambridge Electrokymograph for recording heart border motion; and the Cambridge Plethysmograph which furnishes standardized, quantitative, and reproducible records of variations in volume of human extremities.

### Clay-Adams Co., Inc.

**Booths D-3, D-5**

New clinical laboratory testing sets, new medical and surgical specialties, and new visual aids for teaching are some of the new diagnostic developments in the Clay-Adams exhibit. Included are: the Franklin Bilirubin test; Watson Urobilinogen test kits; a new anemia calculator; an improved calculator for the Wintrobe hematocrit test; Adams Junior Centrifuges with a new protective guard; Kraushaar Cervical Biopsy Punch; Nolan-Budd Cervical Biopsy Curet; Kahn Uterine Cannula Outfit; improved Cantor Tube for intestinal intubation; new series of Medichromes, 2 x 2"—35 mm. Kodachromes; and new anatomical models.

### Warren E. Collins, Inc.

**Booth 8**

The latest respirometers and Timed Vital Capacity equipment for the study of cardio-respiratory disorders are discussed by Warren E. Collins. The Benedict-Roth (water-sealed) and Collins Metabolex (waterless) Metabolism Testers are also shown. The Drinker-Collins Duplex Respirator with its latest refinements and accessories is especially worth seeing.

### Eder Instrument Co.

**Booth C-114**

In the Eder exhibit of diagnostic instruments are a standard flexible gastroscope and an adjustable tip gastroscope. Other interesting items include a flexible esophagoscope with optical examining telescope; a special biopsy cutter; a proctoscopic table, "convertible" into a standard examining table; and latest developments in rectal instruments.

### Edin Company, Inc.

**Booths D-38, D-40**

Their Council-accepted 400A Series Electroencephalographs and Model 220 Electrocardiograph are featured by Edin Company, Inc. In addition, they are showing medical research equipment, such as inkwriting oscillograph recorders and research amplifiers. Edin engineers welcome your inquiries.

### Electro-Physical Labs., Inc.

**Booth B-51**

The Meta-Basal Portable, BMR, by the manufacturers of Cardiotron—a pioneer of direct writing electrocardiographs—is one of the new developments shown for the first time by Electro-Physical Laboratories, Inc. Bedside basals, dry "ink" recording, and one liter Oxycaps are some of the features of the Meta-Basal Portable. Also of interest is the autoprestomatic Cardiotron, direct writing ECG with permanent, abrasion, and solvent resistant Permograph records.

### Grass Instrument Co.

**Booth A-97**

Model III-D Electroencephalograph—accepted by the A. M. A. Council on Physical Medicine and Rehabilitation—and recent instrumentation for electrophysiological recording are featured attractions at the Grass Instrument exhibit. Trained personnel will be pleased to discuss operation and maintenance problems or the installation of new equipment.

### Jones Metabolism Equipment Co.

**Booth B-4**

Jones Metabolism Equipment Co. is exhibiting both its standard Motor-Basal unit and its Multi-Basal double-bellows, multiple combination model. Trained representatives will be glad not only to show the equipment, but to explain how the routine use of the BMR test can be of great help in many seldom-thought-of phases of your practice.

### Keystone View Company

#### Booth C-124

Keystone Prescription Services for home training of visual discomfort, exophoria, and esophoria are demonstrated in booth C-124. These services have been recently revised. Doctors who lecture or conduct classes will be especially interested in the versatile Keystone Overhead Projector for use with standard slides, handmade slides, 35 mm. slides, and micro-slides. Ophthalmologists will find the Keystone Stereomotivator for the diagnosis and orthoptic training of strabismus a new and effective procedure.

### E. Leitz, Inc.

#### Booths D-100, D-102

A new optical design, a radical departure from existing phase contrast equipment is demonstrated by the new Leitz phase contrast accessories in booths D-100 and D-102. Other interesting items include the Leitz Ortholux research microscope, complete with accessories for photomicrographic application; Leitz Rouy Photometer; laboratory microscopes; freezing microtome; and Leica camera equipment for clinical photography.

### National Electric Instrument Co., Inc.

#### Booth D-62

An extensive range of diagnostic instruments—ophthalmoscopes, otoscopes, nasoscopes, hysteroscopes, cystoscopes, cautery units, headlights, transilluminators, controllers, body cavity examining instruments—form an interesting part of National's display. Visitors to the booth will hear of National's continued policy to manufacture instruments of quality and precision with constant improvements.

### Nuclear Research Corp.

#### Booth C-128

Particularly noteworthy at the Nuclear Research exhibit is a scintillation counter, ideally suited for work with radioactive isotopes in thyroid uptake studies and brain tumor localization. The instrument consists of a thallium activated sodium iodide crystal, an R. C. A. No. 5819 photomultiplier tube, and all the necessary circuitry so that it may be operated by merely connecting to the G-M tube outlet of any conventional scaler or ratemeter. Extremely high efficiencies are obtainable (from 50 to 100 times that of the ordinary G-M tube), and successful use of this instrument has been reported with tracer doses as low as 1 microcurie of radioactive iodine.

### Sanborn Company

#### Booth B-91

Instruments for clinical diagnosis, for teaching, and research highlight the Sanborn exhibit. Included are the new Twin-Beam, two-channel photographic research recorder which provides simultaneous recording of phonocardiogram and electrocardiogram; the Sanborn Viso-Cardiette, direct-writing electrocardiograph; and the Sanborn Metabulator, latest model metabolism tester. Information is available concerning the Twin-Viso, Poly-Viso, Electromanometer, Ballistocardiograph, and others.

### Taylor Instrument Companies

#### Booth B-119

Stop at the Taylor booth and see the Tycos Aneroid Sphygmomanometer. Attendants will show you many of its advantages, including the Hook Cuff, guaranteed accuracy of the manometer gage, convenient zip-open case, pocket size for easy use, and full range dial. A pulsating device demonstrating the accuracy of the manometer gage will be of added interest.

### The Technicon Company

#### Booths B-102, B-104

Two new products are shown by Technicon in addition to Autotechnicon, Lab-aid Slide Filing Cabinet, Scopicon, and Technicon Cardiograph. One is a new and different microscope lamp which brings new standards of microscope resolution. The other is a new type of mechanical artificial respirator. All products are in operation during the entire convention.

### Welch Allyn, Inc.

#### Booth A-17

A complete line of electrically illuminated diagnostic instruments is available for your inspection in the Welch Allyn exhibit. Of special interest are improved, sturdy, washable diagnostic cases, improved otoscopes, and nasal bivalve speculas.

## DIETETIC PRODUCTS

### Adolph's Food Products

#### Booth A-117

A palatable seasoning agent for your patients on low-sodium diets is available in Adolph's Salt Substitute, making its first appearance in booth A-117. Interesting free samples of this and of Adolph's seasoned and non-seasoned Meat Tenderizer—an enzyme food product that makes meat really tender—are offered at the exhibit.

### The Baker Laboratories, Inc.

#### Booths D-88, D-90

Baker's Modified Milk (powder & liquid) and Varamel (liquid) made from Grade A milk are discussed in booths D-88 and D-90. Modified by replacement of the milk fat with vegetable and animal fats and by the addition of vitamins and iron, Baker's is completely prepared. Only water needs to be added. Varamel is a new formula base to which carbohydrate and water are added in accordance with the needs of the infant.

### Beech-Nut Packing Co.

#### Booth B-34

Beech-Nut Strained Banana is the new contribution to "Happy Mealtimes" for baby. Nutritionists at the exhibit will be happy to answer any questions regarding the nutritive value and use of this food, and of other Beech-Nut Strained and Junior Foods and cereals.

### The Best Foods, Inc.

#### Booth A-33

This exhibit gives you an opportunity to become better acquainted with high quality food products of The Best Foods, Inc. On display are: Nucoa Margarine; Hellmann's and Best Foods Real Mayonnaise; Hellmann's and Best Foods French Dressing; Hellmann's and Best Foods Sandwich Spred; Best Foods Mustard with Horseradish; and Fanning's Bread & Butter Pickles. Miss Elsie Stark, Director of Consumer Education will welcome you at the booth and provide information on the nutrition and use of Best Foods products.

### The Bib Corporation

#### Booth D-110

An exact scale model of their canning plant is shown by The Bib Corporation. The exhibit which contains over 1,000 working parts and required two months of labor to assemble, introduces two new products to the medical profession. All doctors visiting the booth will be given a chance to taste New Bib Prune-Orange and New Bib Orange-Apricot and will be presented with informative literature regarding these new additions to the baby food field.

### Borcherdt Malt Extract Co.

#### Booth A-40

"For Constipated Elderly"—a new indication for Malt Soup Extract—is the theme of the Borcherdt exhibit. Malt Soup Extract has been used as a gentle laxative modifier of milk for babies since 1911. Now it is being used with good results in geriatric practice. Malt Soup "malteds" (Malt Soup Extract dissolved in cold milk) is being served at the exhibit.

### The Borden Company

#### Booths A-108, B-109

Babies, children, adults—all will benefit by what you will learn about their nourishment in booths A-108 and B-109. For almost a century, Borden's and their nutritional specialists have been working hand-in-hand with the medical profession in the interests of public health and better nutrition. What they have learned in the past will inspire and guide them in the future. Your confidence imposes upon them a responsibility to continue to develop the highest standards of modern nutritional science. Representatives at the booth welcome an opportunity to discuss Borden products with you.

### Brook Hill Farms, Inc.

#### Booth D-125

All Brook Hill dietary milks are being served. These include certified milk, fat-free certified, goat milk, enzylac, and sof-kurd. Products of Brook Hill Farms are distributed by all dairies in the Chicago metropolitan area. John E. O'Donnell, Medical Service Director, in charge of the Brook Hill Farms exhibit, welcomes your inquiries.

### Carnation Company

#### Booth D-77

A cordial reception awaits you at the Carnation Merry-Go-Round exhibit, booth D-77. The unique display shows that Carnation Milk is a first choice for infant feeding. Valuable literature on additional uses of Carnation Vitamin D Evaporated Milk for child feeding and general diet purposes is available for distribution.

### The Coca-Cola Company

#### Booth A-73

Pause at the Coca-Cola exhibit where ice-cold Coca-Cola is being served through the courtesy and cooperation of the Coca-Cola Bottling Company of Chicago and The Coca-Cola Company.

### Corn Products Refining Company

#### Booth A-2

A special feature of the Corn Products Refining display is Karo Syrup, as a milk modifier. The booth is staffed by technical men to answer any questions pertaining to the use of Karo in the infant feeding formula. Recipe material for Karo as well as other corn products, such as Mazola Salad & Cooking Oil and Kre-Mel Puddings, are being distributed.

### The Dietene Company

#### Booth C-19

Visit the Dietene exhibit and examine the Free Diet Service for physicians. The diets are nutritionally well-balanced, easy to follow, and made to appear as if they were typed in your office. Meritene, an economical and palatable whole protein supplement, and Dietene, a "Council-accepted" reducing supplement, are displayed.

### Ditex Foods, Inc.

#### Booth B-115

Ditex Dietetic Foods are distributed by the Ditex Division of Flotill Products, Inc. You will find these foods useful in restricted calory, low sodium, and other therapeutic diets. You will like the way your diabetic and other patients adhere to their diet instructions when Ditex Dietetic Foods are selected for their menus. The food composition is stated on every label, to facilitate diet computations.

### Evaporated Milk Association

**Booth A-23**

"Good Milk to Grow On," a new booklet for mothers, will aid doctors in answering questions about evaporated milk for infant and child feeding. Copies of this booklet, together with other publications on maternal and child health, diet therapy, and general nutrition are displayed at the Evaporated Milk Association exhibit, booth A-23. The publications will be sent free to those registering for them.

### Foley Manufacturing Co.

**Booth D-98**

Food Mill, popular for quickly straining fresh cooked foods for baby and adult diets is being demonstrated on actual foods at booth D-98. Doctors and their wives are invited to see how the Food Mill strains fresh cooked foods into purees, removing fibres, hulls, and seeds.

### General Foods Corporation

**Booths A-25, A-27**

General Foods is featuring three products of special interest to the medical profession: Instant Sanka Coffee, Birds Eye Frozen Orange Juice, and D-Zerta. Sanka is a caffeine-free coffee; D-Zerta, a sugar-free gelatin dessert in six assorted flavors; and Birds Eye Frozen Orange Juice, a frozen concentrate high in vitamin C. Birds Eye Orange Juice and Instant Sanka are being served.

### Gerber Products Company

**Booth C-59**

The Gerber Baby looks forward to greeting physicians and their guests at this Annual Session. His picture on "Starting" cereals, Strained and Junior foods, and Gerber-Armour meats for babies is your assurance of uniform high quality. Gerber's professional representatives are at the exhibit to serve you and to show you new editions of Gerber's baby care booklets.

### H. J. Heinz Co.

**Booth A-76**

Stop at the Heinz exhibit for your copies of Nutritional Data, Nutritional Observatory, and Baby Gift Folders for distribution to your patients. Highlighted is the newest addition to Heinz Baby Food line—Pre-Cooked Barley Cereal. In the new Junior Food line are Sweet Potatoes, Macaroni, Tomato, Beef and Bacon.

### Jackson-Mitchell Pharmaceuticals, Inc.

**Booth B-9**

Their new can "with the golden lining" features the Meyenberg Evaporated Goat Milk exhibit. This new enamel-lined can protects the milk from contact with metal during storage and permits sealing under vacuum. Other highlights include: Hi-Pro, a specially processed, high-protein, low fat basic food of spray-dried cow's milk; and Thylose, a bulk corrective.

### Kellogg Company

**Booth C-25**

Physicians interested in special diets will want to see Kellogg's new Special Diet Guide folder. In compact form are included bland, low caloric, high caloric, sodium restricted, low fat, low residue, high residue, high protein, and high iron diets as well as diets in pregnancy and for young children. Additional restricted diets in convenient pad form are also available. These diets are outlined following the recommendations of best known authorities on diet in disease.

### Charles B. Knox Gelatine Co., Inc.

**Booth D-123**

The medical and dietary uses of Knox Plain Sparkling Gelatine are discussed in booth D-123. The story of the development of Knox Special Gelatine Solution, Intravenous 6%, as a safe and economical substitute for blood plasma in the management of shock, is interestingly told. Attendants at the booth explain the high standards in the production and laboratory control of Knox Gelatine. Literature including diets and recipes are offered.

### Loma Linda Food Company

**Booth B-122**

Soyalac is presented at booth B-122 as an aid in solving many feeding problems, especially in allergy. Attendants will be pleased to sample and discuss this time-tested, hypo-allergenic infant food—Soyalac, a soluble, colloid milk-like, non-residue liquid of agreeable taste which has a striking resemblance to animal milk in its physical properties.

### M & R Laboratories

**Booth B-78**

Infant and child nutrition keynote the M & R exhibit. Representatives, in attendance, will be happy to discuss with you the merits and usefulness of Similac and Cerevim.

### Mead Johnson & Company

**Booths B-28, C-2, C-4, C-6**

Pioneers in cooperating with the medical profession in the field of infant feeding, Mead Johnson & Company now have a comprehensive group of nutritional products. Of special interest (in booths C-2, C-4 and C-6) are Lactum, a canned evaporated formula made from whole milk; Dextri-Maltose; and the family of four Pablum cereals with recently developed improvements in texture, flavor, quality, and packing. Booth B-28 is devoted to protein products.

### Mellin's Food Company of North America

**Booth C-28**

Once again, Mellin's Food—now containing added iron and thiamine—is looking forward to greeting its old friends and meeting new ones. Reappearance of Mellin's Food among the A. M. A. Technical exhibits is focusing special attention on booth C-28 where qualified representatives will be pleased to discuss with physicians the composition and usefulness of this proven product. Discovered in 1866, Mellin's Food was the first stabilized maltose and dextrins milk modifier for infant feeding.

### National Dairy Council

**Booth B-54**

Good nutrition for all ages is dramatized in the National Dairy Council exhibit. Presented is "A Guide to Good Eating" showing the food groups necessary for good nutrition. A portfolio of health educational material suitable for use in your waiting room and for your reference is on display. Registration for a selection of these materials is being taken.

### National Live Stock and Meat Board

**Booth D-10**

This exhibit featuring the value of meat in the diet at all ages from infancy through old age is based on research investigations of these age groups. Nutrition education materials available to the physician are displayed and may be secured upon request.

### The Nestlé Company, Inc.

**Booth B-41**

For your relaxation, The Nestlé Company cordially invites you to enjoy a delicious cup of Nescafé. Specially qualified representatives are available to answer your questions and to give you professional literature on any of Nestlé's milk products for infant feeding.

### Pepperidge Farm Inc.

**Booth C-139**

The Pepperidge Farm exhibit has for its theme a working replica of the type grist mill they employ to stone grind whole wheat. This wheat, together with sweet creamery butter, unsulphured molasses, fresh whole milk, and honey, comprise their whole wheat bread. A sample of this outstanding bread will be served on request.

### Pet Milk Company

**Booths C-52, C-54, C-56**

A miniature working model of an evaporated milk plant is exhibited by Pet Milk Company in booths C-52, C-54 and C-56. This exhibit offers an opportunity to obtain information about the production of Pet Milk, its use in infant feeding, and the time-saving Pet Milk services available to physicians. Miniature Pet Milk cans are offered to physicians who visit the booth.

### Ralston Purina Company

**Booth C-22**

Ralston Purina Company display several new free services at an attractive, stream-lined booth. In addition to their well-known and widely used Low Calorie Diets, Allergy Diets, and Infant Feeding Direction forms, you can examine and order for clinical use, an excellent Diet for Pregnancy, an 800-Calorie Diet, and the Weight-Watcher, a 36-page pocket-size booklet which contains suggestions for maintaining ideal weight and calorie count of over 400 foods.

### Reid Murdoch

**Booth A-46**

"Interesting . . . Helpful" is what you wil say after a visit to the Monarch Finer Food exhibit. Here you will see not only an attractiv display, but are invited to "sit a while" an leisurely look over the complete line of Monarc Dietetic Fruits, Vegetables, and Juices. Helpfu literature concerning all their dietetic foods and giving chemical analysis of each item, i available at the exhibit.

### The Seven-Up Company

**Booth A-130**

The Seven-Up Company cordially invites yo to "fresh up" with a chilled bottle of crystal clear, sparkling 7-Up. Representatives at th booth will be happy to serve you.

### Sugar Research Foundation, Inc.

**Booth C-130**

Sugar Research Foundation invites you to se its new filmstrip—Sugar Through the Ages—o the importance of sugar in the history of th world. The exhibit also features a diorama o the production and processing of sugar fro cane and beet plants. Scientific studies on ca bohydrate metabolism, the role of sugar as food and a valuable raw material of industr educational literature for teachers and students and a directory of the grants-in-aid program o research are available without charge.

### Swift & Company

**Booth B-44**

The original all-meat baby foods, Swift's Meat for Babies and Juniors, will merit your attentio here. You are cordially invited to discuss th use of these high-protein foods with Swift re resentatives in attendance. Literature and i formation on the use of strained meats in spe cial diets and on the new 12-ounce size can fo hospital use may be had at the booth.

### United Fruit Company

**Booth B-96**

Come to the United Fruit exhibit and sample nutritious Banana Milk Shake made with fres fully ripe bananas. At the booth are repre sentatives qualified to answer questions regard ing the use of bananas in therapeutic and gen eral diets.

### The Wander Company
### Booth D-44

Delicious Ovaltine is again being served at the Wander exhibit. Attendants will gladly answer any questions you may have about the composition, merits, and usefulness of the product. Valuable, informative literature on nutrition is available for distribution.

## HEARING AIDS

### Paravox, Inc.
### Booth B-86

This exhibit shows in detail the exact construction of Paravox Hearing Aids—the plastic chassis, dual-crystal microphones, and other features. Of added interest is a new fixed frequency response system where the Paravox Hearing Aids' performance is photographically recorded. Selection of any model can then be duplicated by the factory by referring to duplicate photos on file at headquarters.

### Zenith Radio Corporation
### Booth D-63

New air and bone conduction hearing aids—featuring an exclusive new heat- and humidity-resistant ceramic Permaphone and ingenious reserve "A" battery switch—are presented by Zenith. Both advances eliminate the prime causes of failure in an electrical hearing device. Zenith representatives will be pleased to explain how any physician can test one of these instruments for 30 days without cost or obligation.

## OFFICE EQUIPMENT, FURNITURE, AND SUPPLIES

### A. S. Aloe Company
### Booth C-33

A visit to booth C-33 will show you a cross section of the complete stock of physicians' equipment and supplies carried by A. S. Aloe Company. Highlighted is the new Steeline treatment room furniture, featuring the body contour table top, magnetic door catches, and advanced design—all in new decorators' colors.

### American Sterilizer Co.
### Booth A-61

Designers and manufacturers of sterilizers, tables, and lights for the medical profession, American Sterilizer Company display various items. Included are models of their Major operating table, Albee-Comper fracture table, MacEachern obstetrical table, and Major surgical luminaires. Clinical demonstrations with a live model will be going on at all times. Another item of interest is the All-Purpose Autoclave model 8816, a small portable pressure sterilizer, complete with instruments, wrapped fabrics, and sterile water.

### American Surgical Trade Assn.
### Booth A-38

If you are planning a new office be sure to see a "Guide for Planning Physicians' Offices" featured by the American Surgical Trade Association. The 32-page guide contains typical office layouts, together with descriptive material and suggestions on how offices can be arranged for maximum comfort and efficiency. Office layouts for many specialties are included.

### Burton Manufacturing Co.
### Booth D-20

Several new model lights, including the new Swinglite series and the new Bullseye Lamps, highlight the Burton exhibit of diagnostic, examining, and operating lights. In addition to medical and laboratory lights, Burton is showing blood pipette shakers, Kahn shakers, and muscle testing equipment.

### Wilmot Castle Company
### Booth D-105

A new hi-speed, autoclave known as the No. 777 is demonstrated at the Wilmot Castle exhibit. Designed to fit budget, space, and speed requirements of a busy doctor's office, it sterilizes in one-fifth the running time of the regular autoclave. From a cold start, it requires only 6 to 7 minutes to reach 250° F. and can be re-run in approximately three minutes.

### Colwell Publishing Company
### Booth A-6

Featured here is a complete line of medical record supplies including the Daily Log for Physicians, an easily-kept history of the business side of a practice; history and ledger forms of many different styles and sizes; printed stationery; and appointment books. You may wish to discuss your particular problems with specialists in this field.

### Dictaphone Corporation
### Booths A-107, A-109

Dictating in a dark x-ray room, recording telephone conversations, dictating more complete case histories—these are only a few medical uses for the new electronic Dictaphone Time-Master dictating machine on display at booths A-107 and A-109. The Dictaphone Telecord System for dictation by phone is also being demonstrated. The Telecord System is especially suited to meet the dictating needs of hospitals, clinics, or laboratories where infrequent dictation originates at many distant points.

### Thomas A. Edison, Incorporated
### Booths D-99, D-101, D-103

Better medicine through better medical records is the theme of the Thomas A. Edison exhibit. Featured is the Edison Televoice System for remote controlled clinical recording. In this system, doctors save considerable time by dictating medical records from convenient, easy-to-use Televoice phones located throughout the hospital to a central recorder right on the medical secretary's desk. Documenting the system's "in-the-field" success are displays of case histories developed from scores of hospitals who have turned to this new-fashioned method of medical record production.

### Charles R. Hadley Co.
### Booth C-123

The new Write-It-Once methods, displayed in booth C-123, may answer many of your vexing record keeping problems. The display itself features the doctor's system but for those on hospital staffs a completely illustrated booklet covering all activities from admitting the patient to final collections is available.

### Hamilton Manufacturing Co.
### Booths B-60, B-62

To demonstrate the possibilities of color harmony, the Hamilton display includes a complete colortone suite—table, treatment cabinet, instrument cabinet, waste receptacle, and operating stool—in Ivorytone finish and a Pediatric table in Greentone finish. Hamilton pioneered in the development of the Colortone finishing process which makes possible the use of vibrant colors and at the same time retains the natural beauty of wood grains. Colortone finishes bring a completely new concept of beauty and color harmony to the examining room.

### Medical Case History Bureau
### Booth C-65

A handy, compact method for keeping complete case histories is shown here. In the Info-Dex Record System, charts are so arranged on folders that subsequent cards may be attached by means of a cotter pin which holds the cards together in correct sequence. Different colored cards are available for various types of data such as laboratory, x-ray findings, etc. Included in this system is an automatic diagnostic cross-index. Steel filing cabinets in which to house these history charts and bookkeeping records are also displayed.

### Miles Reproducer Co., Inc.
### Booth C-122

Patient's case histories may now be recorded with Miles Walkie-Recordall, a nine-pound briefcase recorder-reproducer. Excellent for interviews, conferences, consultations, this on-the-spot battery recorder—in a closed briefcase—picks up audible speech within forty feet. These and other advantages, including an individual filmband, are discussed by representatives at the exhibit.

### The Pelton & Crane Co.
### Booth C-21

Incorporating the principle of the hospital autoclave, the new Pelton FL-2 generates then stores steam in a reserve chamber surrounding the sterilizing chamber. This makes autoclaving available at any time of day and eliminates a waiting period between sterilizing cycles. Completely self-contained, it can be plugged into an ordinary light socket. See it demonstrated in booth C-21, south section.

### Professional Printing Company, Inc.
### Booth A-115

Professional Printing Company, Inc., manufacturers of printed items and office supplies distributed exclusively to the medical profession feature their complete line of Histacount products, stationery, patients' records, bookkeeping systems, files, and filing supplies. Actual samples of all items are on display for close examination and study. Drop in and see these products. Booth A-115 is located in the rear of the north section, aisle A, leading to the scientific exhibits.

### The Prometheus Electric Corp.
### Booth A-28

Cabinet style sterilizers, autoclaves, improved lights for the office and clinic—are some of the interesting features seen in the Prometheus exhibit. Anyone contemplating new equipment for office, hospital, or clinic should especially see this display.

### Ritter Company Inc.
### Booths C-116, C-118

Of special interest here are Ritter's newly designed motor, hydraulically elevated tables, providing extremely high and low positions, easy adjustment, and comfort. One medium surgical table is shown with an explosion proof motor and a complete set of modern, Ritter-designed side rail attachments. Other products on display include examination and treatment tables of various types, embodying unusual range and flexibility to suit individual needs of general practice or the specialties.

### Royal Metal Mfg. Co.
### Booths D-24, D-26

A new, hydraulic examination chair and the latest designs in tubular steel furniture may be seen in the Royal Metal display, booths D-24 and D-26. The new ⅞ inch square-tubed chairs and settees for offices, reception rooms, and first aid rooms are shown in both satin chrome and colorful baked enamel finishes.

## PERSONNEL BUREAUS

### Continental Medical Bureau

### Booth A-52

Continental Medical Bureau Agency with offices *in Los Angeles* and San Francisco are represented in booth A-52. Maintaining frequent direct contact with western groups, this Bureau offers accurate, up-to-date information on openings and locations in western states. Stop by and check detailed information on doctor distribution *in California* and on hospitals in western and southwestern states.

### The Medical Bureau

### Booth 7

In Booth 7, M. Burneice Larson offers the facilities of The Medical Bureau, an organization serving as counselors in problems of medical and hospital personnel to medical schools, hospitals and institutions, public health and welfare organizations, group clinics, physicians in private practice and industry. Recommendations can be made of Diplomates of the American Boards qualified to head departments, physicians interested in assistantships or further training, general practitioners and industrial physicians, administrators, public health specialists, executive and supervising nurses, scientists, technologists, dietitians, social workers, and other professional personnel.

### Shay Medical Agency

### Booth B-7

Blanche Shay, director of Shay Medical Agency—a specialized placement service for professional personnel—welcomes your visit to booth B-7 where you may discuss in strict confidence your employment problems. This individual service of international scope embraces the placement of physicians; medical directors of colleges, universities, industries, and pharmaceutical manufacturers; hospital executives, superintendents, technologists, therapists, supervisors, dietitians, etc. Whether you are seeking help, a position, or a new location—whether your needs are immediate or future—Miss Shay can assist you.

### Woodward Medical Personnel Bureau

### Booth 6

To those doctors seeking to re-locate, or to physicians who wish to reorganize or augment their present staff, Ann Woodward offers the facilities of the Woodward Medical Personnel Bureau. The complete details of excellent opportunities for above-average income, with good security and fine future potential, may be investigated and personally discussed with her. You may also review the records and references of some exceptionally well-qualified younger doctors, or of those just finishing their formal training. Complete files may be inspected in Booth 6 where Ann Woodward will be happy to greet you.

## PHARMACEUTICALS

### Abbott Laboratories

### Booths C-78, C-80, C-82, D-81, D-83

*You are invited to* stop by for coffee, low calorie lemonade and cookies sweetened with Sucaryl, Abbott's heat-stable, non-caloric sweetener. The exhibits feature Abbott's pioneering research activities with radioactive isotopes; the use of Pentothal Sodium by rectum; and the convenience of oral inhalation therapy for asthma relief, with *Norisodrine* Sulfate *powder* and the *Aerohalor.*

### American Hospital Supply Corp.

### Booth D-1

Of interest here are: Travert, Baxter's invert sugar solution which supplies twice the number of calories as dextrose in the same infusion time; Baxter's Travamin, protein hydrolysate solution; the new electronically controlled Vasoscillator; Monaghan hospital type respirator; the Beckman Flame-Photometer, which combines photometric and flame determinations *in one instrument;* and laboratory specialties including serums produced by Dade Reagents, Inc.

### Ames Company, Inc.

### Booth D-28

Keeping tab on the diabetogenic *influence* of ACTH and cortisone is simpler with Clinitest. By using the Universal Model, the *steroid* diabetic quickly notes a *rise* or *fall* in glycosuria. *Testing in* the office or laboratory is *facilitated* by the *diagnostic kit. Demonstrations* also of Acetest, Bumintest, and Hematest are available at the *Ames exhibit.*

### The Armour Laboratories

### Booths B-57, B-59, B-61

The Armour Laboratories feature the spectrum of indications for Acthar, Armour Laboratories brand of *adrenocorticotropic hormone* (corticotropin-ACTH). Representatives will be glad to discuss Acthar and to *furnish current* investigative information. Other Council-accepted, or official, Armour products in the display include *Adrenal Cortex Extract*, Liver Extract, Liver Injection, Posterior Pituitary Liquid, and Thyroid.

### Astra Pharmaceutical Products, Inc.

### Booth B-128

The use of *Xylocaine Hydrochloride* (Astra), a new local anesthetic, in both dentistry and many *surgical procedures* is emphasized in booth *B-128.* Information regarding the effectiveness of the product in nearly one hundred separate *clinical investigations* is available at the exhibit, presided over by Mr. B. F. Jalar, company *president.*

### Ayerst, McKenna & Harrison, Ltd.

### Booths D-45, D-47

Physicians attending this Annual *Session* are cordially invited to visit the Ayerst booth. Representatives will welcome you and answer any inquiries relative to Premarin, Exorbin, or other Ayerst specialties of interest to you.

### Bilhuber-Knoll Corp.

### Booth B-66

Visit the Bilhuber-Knoll booth B-66, for information on the value of Metrazol especially on its activation *of the brain in* epilepsy. Your discussions of this effective analeptic and other *Bilhuber medicinal chemicals*, such as Dilaudid, Theocalcin, and Kromural, will be welcomed.

### Brewer & Company, Inc.

### Booth C-121

Brewer & Company feature some of the products of its *Ampul Division*, as well as the Tablet Division, and three of its specialties: Thesodate, brand of Theobromine and Sodium Acetate, supplied in enteric coated tablets; Gel-Ets Oleovitamin A 25,000 Units; and Gel-Ets Triasyn B. Representatives will be glad to answer any questions concerning these products and arrange for samples and literature to be sent to the physician's office.

### Bristol Laboratories Inc.

### Booths A-9, A-11

Members of the medical profession are cordially invited to visit the Bristol Laboratories' exhibit. Qualified representatives are on *hand* to discuss new trends in antibiotic therapy.

### Burroughs Wellcome & Co., Inc.

### Booth D-122

Aerosporin Sulfate brand Polymyxin B Sulfate which is bactericidal to most gram-negative bacilli, including pseudomonas aeruginosa (B. pyocyaneus), is featured. Intermediate-acting *Globin Insulin* (B. W. & Co.), a clear solution requiring no preliminary shaking and now official *in the* U.S.P., is also displayed with Digoxin (B. W. & Co.), a pure, rapidly eliminated crystalline glycoside.

### The Central Pharmacal Co.

### Booth A-54

Two *products* "born of Central Pharmacal's original research" highlight this exhibit. One is Synophylate (Theophylline-Sodium Glycinate). The other is Trisulfazine (triple-sulfa preparation), in various *dosage forms.*

### Chicago Pharmacal Company

### Booth B-53

The Chicago Pharmacal Company (Chimedic), manufacturers of fine pharmaceuticals for over half a century, exhibit their well known line of *Council-accepted*, or exempted, Chimedic products. Literature and samples of the many available dosage *forms* of *Alpha* Estradiol U.S.P. Chimedic, Calcium Levulinate N.F. Chimedic, Digitoxin U.S.P. Chimedic, and Diethylstilbestrol U.S.P. Chimedic are available to physicians attending the convention.

### Chilcott Laboratories Inc.

### Booth C-81

Peritrate, the new Chilcott oral vasodilator for prevention of attack in angina pectoris, can be discussed in detail with representatives and research personnel at the exhibit. Also featured are demonstrations of simplified prothrombin time *determinations with the new thromboplastin* extract, Simplastin. Stop by for a moment—you will be welcomed.

### Chilean Iodine Educational Bureau Inc.

### Booth A-29

Chilean Iodine Educational Bureau in booth *A-29* points out the values of iodine and its compounds and preparations in the fields of medicine, surgery, and nutrition. Samples of official and Council-accepted drugs containing iodine are displayed. Reprints of various papers and other services of the Bureau are offered at the exhibit.

### Church & Dwight Co., Inc.

### Booth B-23

The use of Arm & Hammer and Cow Brand Baking Soda as a dentifrice is emphasized in the Church & Dwight exhibit. Colorful *little booklets* suggesting its application in cleaning teeth are available; and handy, pocket-sized *samples* especially suitable for traveling may be had at the booth.

### Ciba Pharmaceutical Products, Inc.

### Booths A-58, A-60, A-62

Pyribenzamine *Hydrochloride*, an antihistaminic which provides maximum allergic relief with minimal side *effects*, features the Ciba Pharmaceutical exhibit. Representatives, in attendance, will be glad to discuss the role of Pyribenzamine Hydrochloride in the *treatment* of hay fever and other allergies.

### Commercial Solvents Corporation

### Booth D-2

C. S. C. Pharmaceuticals, a division of Commercial Solvents Corporation, display Bacitracin Ointment and Ophthalmic Ointment; Kwell Ointment; and accepted dosage forms of penicillin

### Cutter Laboratories

### Booth A-15

Cutter Laboratories feature a *new* plastic cla that is built into all expendable I.V., *blood* a plasma sets for *one-hand* regulation of the ra of flow of fluids. The all-plastic sets, a compl line of Cutter Saftiflask Solutions, and the Cut 50 cc. Albumin Shock Kit are shown.

### Davies, Rose & Co., Ltd.

#### Booth C-36

Among this firm's laboratory productions, Pil. Digitalis and Tablets Quinidine Sulfate (Natural) have won the confidence of the cardiologist who knows that he can rely on their constant and dependable potency. You are cordially invited to visit booth C-36, where representatives will be pleased to welcome you and to discuss these outstanding cardiac therapies.

### The Denver Chemical Mfg. Co., Inc.

#### Booth A-48

Galatest powder for the instantaneous determination of urine sugar and Acetone Test (Denco) for the detection of acetone in urine are exhibited here. You are cordially invited to witness demonstrations of these "spot tests" for sugar and acetone. Galatest powder and Acetone Test (Denco) offer advantages of accuracy, simplicity, and economy in routine urinalysis.

### Eaton Laboratories, Inc.

#### Booths C-20, C-48

The availability of several dosage forms of the topical antibacterial agent Furacin is proving advantageous in their adaptability to recent advances in medical technics. One example is the application of Furacin Solution by atomizer in the exposure treatment of burns. The application is rapid and painless; and the resulting transparent film acts as a barrier to air-borne infection. When impregnated gauze for burns is preferred, Furacin Soluble Dressing gauze is easily prepared and highly efficacious. Representatives at the booth will be pleased to discuss these important additions to the Furacin family.

### Endo Products Inc.

#### Booth C-44

Council-accepted Cumertilin, a basically new mercurial diuretic, is Endo's big news at this year's Annual Session. Information on the clinical effectiveness of Cumertilin for relief of salt retention edema is available; and representatives at the booth will also be glad to discuss other widely useful Council-accepted products of Endo research: Hycodan, an effective anti-tussive; Mesopin, a better-tolerated gastrointestinal antispasmodic; and Norodin, a modern psychomotor stimulant and anti-depressant.

### Fellows Medical Mfg. Co., Inc.

#### Booth B-5

Chloral Hydrate, a relatively safe, time-tested sedative, is now available in convenient capsule form. Fellows have successfully encapsulated chloral hydrate—an achievement long considered impossible—which permits the effective use of this important drug for daytime sedation and hypnosis. Choral Hydrate Capsules-Fellows produce a normal type of sleep without appreciable depressant after-effects. Representatives at the booth will be pleased to discuss this important addition to the field of sedative and hypnotic therapy.

### C. B. Fleet Co., Inc.

#### Booth B-95

Phospho-Soda (Fleet), over the years has won the discriminating preference of many physicians—because of its controlled action, freedom from undesirable side effects, and ease of administration. There is only one Phospho-Soda (Fleet)—"safe and effective whenever laxation is indicated."

### Flint, Eaton & Company

#### Booth D-80

Flint, Eaton & Company feature Chothyn Syrup and Chothyn Capsules, original pharmaceutical products designed for lipotropic therapy. Trained professional service representatives will be happy to discuss with physicians these Council-accepted products and to acquaint them with the results of recent research pertaining to the use of lipotropic agents in the treatment of fatty infiltration of the liver.

### Geigy Pharmaceuticals

#### Booth D-82

The Geigy exhibit features Tromexan, a new, Council-accepted, oral anticoagulant. Tromexan is more rapid in action and more rapidly detoxified than previously available oral anticoagulants. Because of the lesser cumulation of Tromexan, the danger of severe hemorrhage through accidental overdosage is reduced. Descriptive literature and reprints, as well as clinical samples, are available to physicians.

### The Harrower Laboratory, Inc.

#### Booth D-97

The Harrower technical exhibit presents Mucotin, a coating antacid. The exhibit features the coating action of Mucotin on a large gastric ulcer which is the central theme of the exhibit. In addition, complete case histories with gastroscopic pictures illustrate the various stages of a healing ulcer. Reprints, samples, and literature are available at the exhibit.

### Hoffmann-La Roche, Inc.

#### Booth A-20

Dromoran and Gantrisin are now featured for the first time at an A. M. A. Session. Dromoran is a new morphine analogue, the synthesis of which is listed among the ten most important advances in science and technology in 1951. Gantrisin is a top-ranking sulfonamide because its higher solubility obviates renal blocking. Recent clinical data are available on these and other Roche products at the display.

### Holland-Rantos Company, Inc.

#### Booth B-94

Jelly with diaphragm or jelly alone—is a timely subject which physicians interested in medical contraception are invited to talk over with Holland-Rantos representatives at booth B-94. Koromex Diaphragms, Jelly and Cream—separately and in sets—are displayed for your inspection. For patients' confidence, Koromex Diaphragm and Koromex Jelly or Cream offer consistently effective protection.

### Hollister-Stier Laboratories

#### Booth D-37

Pioneers and specialists in allergenic products, Hollister-Stier Laboratories present information on their Allergy Service available from their four laboratories. All types of diagnostic and therapeutic extracts of pollens and proteins—including foods, epidermals, feathers, furs, fungi, and miscellaneous factors—are exhibited. Accessories for office and laboratory use are demonstrated.

### Homemakers' Products Corporation

#### Booth D-114

Diaparene Chloride Tablets, N. N. R., a Council-accepted preparation for diaper rash (ammonia dermatitis), is offered you in generous supply for your own conclusive clinical trial. One Diaparene Chloride tablet dissolved in two quarts of clean water as a final rinse for every six diapers, or less, protects infants during prolonged incubation in the soiled diaper, as at night, from formation of irritating ammonia caused by bacterial decomposition of urinary urea. For further medical evidence demonstrating the therapeutic merit of Diaparene Chloride register at booth D-114.

### Hyland Laboratories

#### Booth D-104

Standardized biologicals and serums derived from human whole blood feature the Hyland Laboratories exhibit. Special emphasis is given to Pertussis Immune Serum Irradiated, derived from healthy hyperimmunized adult donors and used in passive prevention and treatment of whooping cough. Irradiated Normal Human Plasma, a complete line of Blood Grouping Serums, Rh Typing Serums, other blood diagnostic reagents, bleeding bottles, and blood bank specialties complete the display.

### Ives-Cameron Company, Inc.

#### Booth A-67

Ives-Cameron Company, Inc. cordially invites you to visit booth A-67 where trained representatives will gladly discuss with you the Council-accepted products marketed by Ives-Cameron Company, Inc.

### Kremers-Urban Company

#### Booth B-98

Representatives at the Kremers-Urban booth will be delighted to answer any questions you may have concerning the long line of K-U Council-accepted medications. They look forward to meeting their many friends from all over the country.

### Lakeside Laboratories, Inc.

#### Booth D-58

Some of the conclusions of a six-year study of new diuretic agents keynote the Lakeside exhibit showing the research activities engaged in by this firm. The display involves the chemistry, pharmacology, and clinical trial of these experimental compounds. Members of Lakeside Laboratories' scientific department will be pleased to discuss the projects with you.

### Lanteen Medical Laboratories, Inc.

#### Booth C-69

Competent, informed representatives of Lanteen Medical Laboratories explain the distinct advantages of the Lanteen Technique combining the use of the Lanteen Diaphragm with Lanteen Jelly. Ask about the recent Council report on contraceptives. Latest information on Lanteen Council-accepted, or exempted, products is available. Physicians at the booth will receive complimentary full-sized packages containing Lanteen Diaphragms and Lanteen Jelly.

### Lederle Laboratories

#### Booths 2, 4

Lederle Laboratories, Division of American Cyanamid Company, features Aureomycin. In attendance are trained representatives familiar with the use of Aureomycin. For distribution to physicians, there is special literature relating to the more recent studies in the use of this versatile antibiotic.

### Eli Lilly and Company

#### Booths B-43, B-45, B-47

The Lilly folks, in attendance at the A. M. A. Session, wish to help make your visit informative and interesting. They are demonstrating that functional packaging can aid your medical practice. Modern manufacturing methods in the Lilly plant are illustrated; and printed material regarding the use of Lilly products is offered. Your Lilly medical service representative cordially invites you to visit booths B-43, B-45, and B-47.

### Mallinckrodt Chemical Works

#### Booth B-38

Mallinckrodt Chemical Works cordially invites members and guests of the American Medical Association to visit their booth, B-38. Representatives in attendance will be glad to discuss the chemical products displayed, or any other chemical manufactured by the company which has been accepted by the A. M. A. Council on Pharmacy and Chemistry.

### The S. E. Massengill Co.

#### Booth A-118

The Massengill exhibit presents the results of a three-year study investigating blood levels of theophylline following oral dosage of aminophylline. Charts show new results obtained through the use of various antacids administered simultaneously with aminophylline, including clinical data. The exhibit features Massengill Aminophylline but is in the nature of a research laboratory report.

### McKesson & Robbins, Inc.
### Booth C-79

The central theme of McKesson & Robbins exhibit, booth C-79, features Council-accepted vitamin products along with laboratory demonstrations of the technique of instrumental vitamin assays. Another important feature is an exhibit on sunburn and sun tanning. Tartan Suntan Lotion is presented—and a complete line of cosmetic preparations accepted by the A. M. A. Committee on Cosmetics.

### McNeil Laboratories, Inc.
### Booths C-10, C-12

Butisol Sodium, Syndrox Hydrochloride, Orestralyn, and Metha-Merdiazine are among the Council-accepted pharmaceutical preparations exhibited by McNeil Laboratories. Representatives attending McNeil's newly constructed exhibit extend a warm welcome to their many professional friends.

### Merck & Co., Inc.
### Booths C-15, C-17

Cortone (Cortisone Merck) is featured here. Among the conditions in which Cortone has produced striking clinical improvement are: rheumatoid arthritis and related rheumatic diseases; status asthmaticus; eye diseases including non-specific iritis, iridocyclitis and uveitis; and certain skin diseases including cases secondary to drug reactions. Cortone is supplied in a saline suspension for parenteral use; in tablets for oral use; and in an ophthalmic suspension and ophthalmic ointment. Since its initial use at the Mayo Clinic, Cortone has been subjected to careful clinical evaluation by more than a thousand investigators. As a result, extensive information has been accumulated on its therapeutic uses. The recently introduced low dosage regimen has made it possible to treat many more patients on a more economical basis.

### The Wm. S. Merrell Co.
### Booth C-86

A new hormonal treatment of prostatic carcinoma—with Tace—keynotes the Merrell exhibit. Tace differs from other estrogens, whether natural or synthetic. It does not cause pituitary or adrenal hyperplasia when given to male or female rats. Diethylstilbestrol and hexestrol have been found to enlarge these endocrine glands. This one fact—lack of apparent effect upon the adrenal and pituitary—has caused a great deal of interest among urologists treating carcinoma of the prostate with estrogens.

### Monsanto Chemical Company
### Booth D-60

Against a background of chemicals representing its contribution to the pharmaceutical industry, Monsanto displays saccharin. Monsanto is the principal U. S. manufacturer of this nonnutritive sweetener.

### The National Drug Company
### Booth D-14

Resinat, an essentially non-toxic anion exchange resin; Protinal Powder, a whole protein carbohydrate mixture; Diphtheria, Tetanus and Pertussis Vaccine, combined triple immunization, are included in National's vast array of Council-accepted biological and pharmaceutical preparations.

### Nepera Chemical Co. Inc.
### Booth D-18

The Nepera display is devoted to two Council-accepted products—Mandelamine for urinary antisepsis in such indications as cystitis, pyelitis, and prostatitis; and Neohetramine, an antihistaminic agent which authorities declare to be notably low in side effects.

### Novocol Chemical Mfg. Co., Inc.
### Booth D-7

How the Anestube (cartridge) system of Monocaine Hydrochloride—epinephrine solutions—will save time in your busy practice is discussed at the Novocol booth. The Anestube (cartridge) system is economical, too. Qualified representatives will be happy to explain the many advantages of Monocaine Hydrochloride epinephrine solutions for local anesthesia.

### Organon Inc.
### Booth A-5

Organon features its many Council-accepted products: Oranixon (mephenesin), a muscle relaxant which quiets hyperexcitability without affecting normal reflexes; Doca Acetate (desoxycorticosterone acetate), a synthetic adrenal cortical extract whose scope in therapy is constantly being enlarged; Muracil (methyl thiouracil), one of the more effective yet less toxic antithyroid preparations; Liquaemin Sodium (heparin sodium), in regular and high-potency strengths for the more recent methods of administration; Dimenformon Benzoate (pure estradiol benzoate), for use when a potent natural estrogen is needed; and Lynoral (ethinyl estradiol), the most potent oral estrogen in clinical practice today.

### Ortho Pharmaceutical Corp.
### Booth A-94

"The Physician's Responsibility in Marriage Counseling" is the theme of Ortho's exhibit. This dramatic and provocative subject should be of interest to physicians. Ortho representatives will be happy to greet you and answer any questions you may have on Ortho preparations.

### Parke, Davis & Company
### Booths C-85, C-87, C-89

The Parke-Davis exhibit is devoted to Chloromycetin (Chloramphenicol). The first antibiotic made both by fermentation-extraction and by chemical synthesis, Chloromycetin consistently demonstrates its clinical effectiveness in the treatment of patients with infections due to a wide spectrum of microbiologic forms, including: gram-negative and gram-positive bacilli and cocci, rickettsiae, and viruses. Representatives in attendance will be pleased to discuss this and other meritorious Parke-Davis products with you.

### The E. L. Patch Company
### Booth B-50

Following their usual custom of showing something of unusual interest, Patch representatives demonstrate the rapid and prolonged antacid action of Alzinox, Patch brand of Dihydroxy Aluminum Aminoacetate. They will also be glad to tell you about the various dosage forms of Glytheonate, Patch brand of Theophylline-Sodium Glycinate, a theophylline with minimum gastric irritation.

### Pitman-Moore Company
### Booth C-1

Pitman-Moore Company feature Ivoko (Poison Ivy-Poison Oak Extract) and Infagen (Diphtheria and Tetanus Toxoids, Alum Precipitated, and Pertussis Vaccine Combined). Members of the A. M. A. are invited to visit the company's booth and discuss these two important specialties, as well as other Pitman-Moore products bearing the seal of acceptance of the Council on Pharmacy and Chemistry of the A. M. A.

### Premo Pharmaceutical Labs., Inc.
### Booth C-101

Premo employ novel methods to demonstrate their patented Drain-away feature. Drain-away vials are used in manufacturing Procaine Penicillin for aqueous injection. Soluble Penicillin tablets—Nebutabs—the original soluble Penicillin tablet and first soluble Penicillin tablet to be accepted by the Council on Pharmacy and Chemistry of the American Medical Association, is demonstrated in conjunction with other Premo Products.

### Rexall Drug Company
### Booth A-72

Rexall has been engaged in the manufacture of fine pharmaceuticals including U. S. P. and N. F. products since 1903. There are 10,000 independent Rexall Drugstores in the United States and Canada who stand ever ready to give your prescriptions the individual attention and precise compounding each requires. Featured in the booth are Council-accepted, buffered, pleasantly flavored penicillin tablets. The display also includes attractive proofs of the ethical type of advertising Rexall has sponsored in medical journals.

### Riker Laboratories, Inc.
### Booth B-89

The featured attraction here is Solution Intravenous Veriloid. This hypotensive fraction of Veratrum viride, biologically standardized in mammals, is a powerful vasorelaxing agent for emergency use in hypertensive crises. Veriloid Intravenous which makes possible immediate controlled reduction of both systolic and diastolic tensions is indicated in the emergency treatment of hypertensive states accompanying cerebral vascular accidents, malignant hypertension, and hypertensive crises (encephalopathy).

### A. H. Robins Company, Inc.
### Booth 14

The A. H. Robins Company features Robalate, N. N. R., antacid-demulcent indicated in peptic ulcer therapy and hyperacidity. The pharmaceutically elegant tablets, each containing 0.5 gm. dihydroxy aluminum aminoacetate, are notable for exceptional palatability and smooth, nonchalky texture.

### William H. Rorer, Inc.
### Booth A-34

Representatives here will tell you that many pre scriptions for Castellani's Paint yield mediocr results because the formula when prepared b the method described in Remington's Practice o Pharmacy is unstable and that the fuchsin cor tent is partly lost through precipitation an subsequent filtration. William H. Rorer, Inc through intensive study, has produced a bran of Castellani's Paint which is Council-accepte and which is stable for approximately one yea By prescribing "Carfusin-Rorer" instead Castellani's Paint, the physician has assuran of a first-class, therapeutically active produ

### Rystan Company, Inc.
### Booth C-7

Rystan Company, Inc., features new clinical a laboratory reports of chlorophyll therapy, w Council-accepted Chloresium Ointment and Cl resium Solution (Plain). In the topical treatm of wounds, burns, ulcers, and dermatoses, th therapeutic chlorophyll preparations promote normal growth of healthy granulation tissue, vide symptomatic relief, and deodorize malo ous lesions. Descriptive literature is availa and representatives will be pleased to dis specific applications of these products.

### Sandoz Pharmaceuticals
### Booths D-92, D-94 (Movie Rm

With pride and pleasure, Sandoz Pharma cals invite you to visit their scientific exhibit in booths D-92 and D-94. Repres tives at the booth will be pleased to we you.

### Schenley Laboratories, Inc.
**Booth A-68**

Titralac, a unique antacid preparation is highlighted at the Schenley exhibit. Combining the buffering action of glycine with the neutralizing properties of calcium carbonate, Titralac provides an acid-inactivating property singularly like that of milk. Useful in hyperacidity and peptic ulcer, it is available in tablet, liquid, and powder forms. Trained personnel are on hand to discuss Titralac and Schenley's Council-accepted penicillin products as well.

### Schering Corporation
**Booths C-34, D-33**

Chlor-Trimeton Tablets and Syrup, antihistamine preparations known for their relative safety and clinical effectiveness in low dosage, are featured here. Also shown are Sulamyd, widely prescribed antibacterial for genito-urinary tract infections; Sodium Sulamyd Solution and Ointment for ophthalmic use; Solganal, a time tested gold suspension for rheumatoid arthritis; and Priodax and Neo-Iopax, radiopaque media. The exhibit is highlighted by Estinyl, Schering's ethinyl estradiol, noted for efficacy and economy in oral estrogenic therapy; and Tricombisul tablets, presenting the therapeutic advantages of Sulfacetamide in combination with Sulfadiazine and Sulfamerazine.

### Schieffelin & Co.
**Booth A-22**

Schieffelin specialties on exhibit include: Benzestrol, a non-stilbene, orally effective, synthetic estrogen; Merbak, a topical mercurial antiseptic having high bactericidal activity, as well as bacteriostatic action; and Solu-Plastin, a stable solution of thromboplastin for use in the determination of prothrombin activity.

### G. D. Searle & Co.
**Booths B-127, B-129, C-92**

You are cordially invited to visit the Searle exhibits located in booths B-127 and B-129 in the north pavilion, and in booth C-92 in the south pavilion. Searle medical service representatives will be happy to furnish you with information regarding Banthine, the true anticholinergic drug for the treatment of peptic ulcer and other parasympathotonic conditions; Dramamine, for motion sickness; Metamucil, for the physiological treatment of constipation; Alidase' for hypodermoclysis at intravenous speed; and other products of Searle research.

### Sharp & Dohme, Inc.
**Booths B-19, B-21**

Trained personnel discuss data relative to current research activities at the Laboratories of Sharp & Dohme. Subjects of interest include Benemid Probenecid, a new uricosuric agent for the interval treatment of gout and the treatment of chronic gouty arthritis. Research data on intestinal bacteriostatic agents such as Sulfasuxidine and Sulfathalidine are also of major interest.

### Smith-Dorsey
**Booth B-40**

Smith-Dorsey is featuring: Doraxamin, an improved treatment for peptic ulcer; Dorsaphyllin, a buffered aminophylline possessing better gastric tolerance; Pasara Sodium (para-aminosalicylate sodium), an adjunct therapy in tuberculosis; H. P. S. Sixty, a well tolerated protein supplement; and many Council-accepted injectables.

### Smith, Kline & French Labs.
**Booth A-63**

Specially trained S. K. F. professional representatives are at your service in booth A-63. They will be pleased to tell you about their Council-accepted, and exempted, products; and to answer any questions you may have concerning the possible use of these items in your practice.

### E. R. Squibb & Sons
**Booths D-85, D-87, D-89**

A simplified, short, easy-to-understand diet instruction booklet which shows the patient how to eat properly is featured at the Squibb exhibit. This latest Squibb patient aid is profusely illustrated in full color. Foods are placed in three categories—protein, energy, and regulator—and patients are shown the importance of each. Copies of the leaflet are available for distribution to your patients.

### R. J. Strasenburgh Co.
**Booth B-42**

Naprylate (Brand of Caprylic Compound), in the treatment of monilial and other superficial fungus infections, and Raphetamine Phosphate, for the treatment of mild psychogenic depressive states and obesity, are featured at the Strasenburgh exhibit. Qualified medical service representatives will be happy to demonstrate the properties of Naprylate and Raphetamine Phosphate in their various dosage forms.

### Strong, Cobb & Co., Inc.
**Booth C-50**

Ampins (automatic ampule injections) are being demonstrated at booth C-50. Ampins are syringe, needle, and medication—all in one pre-sterilized unit ready for instantaneous use. A wide variety of products are available in Ampins for subcutaneous use; and a new aluminum Ampin Emergency Assortment Kit, handy to carry in the bag, car or pocket, is shown.

### Testagar & Co., Inc.
**Booth A-110**

Professional service representatives of Testagar & Co., Inc. welcome their friends to view many new modern developments in the pharmaceutical field shown at booth A-110. Literature on some of these recent developments is available. Vials and ampuls of Sodium Ascorbate, Testosterone Propionate, and Heparin are displayed. Your requests for samples, literature, or technical information are invited.

### Marvin R. Thompson, Inc.
**Booth A-8**

Physicians are invited by Marvin R. Thompson, Inc. to view their outstanding preparations on display: injection of Quinidine Sulfate-MRT, for intramuscular use; Sulfadiazine with Sodium Lactate-MRT; and Sulfa-tri-Azine with Sodium Lactate-MRT. The two sulfa preparations contain concomitant alkali in a 3 to 1 proportion. Syrup Vitamin B Complex-MRT, each teaspoonful equivalent to 30 five grain brewers yeast tablets, is also exhibited.

### U. S. Vitamin Corp.
**Booth D-16**

Shown here are a new "oil-in-water" demonstration of Aquasol Vitamin A Drops and a special demonstration of a new, compact automatic ampul filling and sealing machine. While at the exhibit, taste for yourself a new and different sodium-free salt substitute, Co-Salt, which actually tastes like salt, looks like salt, and sprinkles like salt—a boon to your patients on restricted sodium intake.

### The Upjohn Company
**Booths B-65, B-67, B-69**

It is the sincere desire of The Upjohn Company to make some definite contribution to the success of the 1952 meeting. Stop by at booths B-65, B-67, and B-69 to relax and discuss topics of mutual interest.

### VanPelt and Brown, Inc.
**Booth B-113**

Visitors to the VanPelt and Brown, Inc. display will see an interesting exhibit of its Council-accepted specialties, including Vanzoate (modified benzyl benzoate) Lotion. Representatives, on hand, will gladly answer all questions regarding the products on display.

### Varick Pharmacal Company, Inc.
**Booths D-111, D-113**

Varick Pharmacal Co., Inc.-E. Fougera & Co., Inc. cordially invite physicians to discuss with professional service representatives new preparations of importance to their every-day practice. Descriptive literature and samples of all products are available.

### Walgreen Drug Stores
**Booth D-84**

Welcome to Walgreens—is your invitation to visit booth D-84 and view a modern, up-to-the-minute Prescription Department. Let representatives at the exhibit show you their formula for Walgreen-filled prescriptions. They take professional knowledge, add years of experience (51, in fact), blend in a good portion of the pharmacist's integrity—plus exact amounts of fine, fresh drugs—and mold together with utmost accuracy and care.

### Walker Laboratories, Inc.
**Booth B-87**

Cevex, brand of ascorbic acid, in water miscible solution, providing 5 mg. of vitamin C per drop, is featured at this modern exhibit. Cevex tablets, in potencies of 25, 50, and 100 mg. are also displayed. Other Council-accepted products seen at the booth include Hexavitamin—the only official multivitamin formula; Choline Dihydrogen Citrate 500 mg. tablets; and Methionine 500 mg. capsules.

### Henry K. Wampole & Company, Inc.
**Booth C-55**

Sulfatryl with Sodium Citrate Dry Flavored Granules for Suspension is a preparation of the triple sulfonamide mixture, Meth-Dia-Mer Sulfonamides, N.N.R. (1:1:1 ratio) based on the sulfonamide solubility principle. Sulfatryl Granules insure uniform triple sulfonamide suspension because each prescription is freshly prepared. Addition of 60 cc. distilled water to the prescription bottle quickly makes 90 cc. of a smooth, fresh, absolutely uniform suspension. Well informed representatives at the exhibit will appreciate the opportunity to discuss with you the merits of this outstanding product.

### William R. Warner
**Booth A-99**

William R. Warner are featuring their blue dye utilized for the determination of circulating blood volume in an extensive variety of chronic and acute conditions. Surgeons, specialists, and general practitioners will find the dye clinically interesting and useful. Representatives at the booth describe the simple procedure involved in the determination and answer questions on the dye and other Council-accepted Warner products.

### The Warren-Teed Products Company
**Booth D-32**

Sinan (brand of Mephenesin Warren-Teed) used in the treatment of certain spastic and neuromuscular disorders is featured at this exhibit. The pharmacological action of Sinan is dramatically demonstrated through the medium of fluorescent paints activated by alternating white and ultraviolet light. Courteous representatives are in attendance to assist registrants in any way possible.

### White Laboratories, Inc.
**Booths A-98, B-99, C-120, D-119, D-120**

In booths A-98 and B-99, White Laboratories call attention to a new audio-visual exhibit, in which the recorded sounds of normal and variously disordered hearts are correlated with phonocardiograms and electrocardiograms. Representatives will be glad to supply complete information concerning the cardiac glycoside, Gitaligin, authoritative studies of which have recently elicited much clinical interest.

*(Continued on page 126)*

# ORGANIZATION SECTION

## STATE MEDICAL LEGISLATION

### Mississippi

**Bills Introduced.**—H. 725, to amend the law relating to the licensing of optometrists, proposes that the **practice of optometry be declared to be a learned profession** and that the practice thereof be restricted to the employment of objective or subjective means or methods of determining the refraction of the human eye and/or any visual or muscular, neurological, or anatomic anomalies of the human eye other than by the use of drugs or surgery, and the use and prescription of ophthalmic or contact lenses for the relief of refractive errors and other means or methods for the correction of deficiencies in the human eye, other than by the use of drugs or surgery. H. 744, proposes an appropriation to the Mississippi commission on hospital care for carrying out the provisions of law creating the commission and for the purpose of building, erecting, equipping, and contributing to the **building, erecting and equipping of hospitals**, nurses homes, schools of nursing, health centers, health department, clinics, and related facilities. H. 788, proposes the imposition of a **privilege tax** upon persons, firms, or corporations operating stores or business **establishments wherein eyes are examined** or glasses fitted and by providing that any person, firm or corporation may own or operate a store or business establishment wherein eyes are examined or glasses fitted provided that a duly licensed optometrist, physician, or surgeon shall examine eyes or fit glasses. H. 810, proposes to authorize the state board of health to examine and license applicants desiring to practice as **corrective therapists.** Corrective therapy is defined to be synonymous with the terms exercise therapy, corrective physical education and physical reconditioning performed under the prescription, supervision and direction of a person licensed to practice medicine, surgery and psychiatry. H. 822, proposes to **authorize corporations to own or operate establishments wherein eyes are examined** or glasses fitted provided only duly licensed optometrists or surgeons shall examine the eyes of any person for the purpose of fitting the same with glasses. H. 845, proposes to make it unlawful for any person, firm or co-partnership or corporation to sell any drug or medicine containing any quantity of **barbituratic acid** or any compound or mixture thereof except upon the written prescription of a physician, dentist, or veterinarian authorized by law to practice his profession and possessing a federal narcotic license. H. 857, to amend the medical practice act, proposes to require the state board of health to automatically **revoke the license of a physician** who has been convicted of violating any federal or state law relating to narcotic drugs when the sentence imposed is in excess of one year. The license shall be suspended for one year when the sentence imposed is less than one year.

### New Jersey

**Bills Introduced.**—A. 13, proposes the enactment of a **prevention of chronic illness act** which would establish a division of chronic illness control in the department of health for the prevention, early detection and control of chronic illness and rehabilitation of the chronic sick in the state. A. 157, to amend the workmen's compensation act, proposes, among other things, to authorize an **injured employee to select to treat him any duly physician.** A. 265, proposes that no drug, medicinal preparation, appliance, device or any article intended or having special utility for the **prevention of venereal disease** shall be sold or disposed of in the state except by duly licensed practitioners of medicine or in pharmacies and drug stores for whose operation a permit has been duly issued by the state board of pharmacy. A. 497, to amend the medical practice act, proposes, among other things, that no premedical college or professional college shall be deemed in good standing if such institution refuses **admission to applicants because of race, creed, or color** or has adopted a quota system for such admission. A. 526, proposes to authorize the board of freeholders of any county to establish and maintain a **mental health program** for the operation or the support of centers **for the diagnosis and treatment of mental disorders in children**, such as mental hygiene clinics and child guidance clinics. A. 540, proposes to make it a high misdemeanor for any person to sell, give, administer or dispense **narcotic drugs to persons under the age of 18 years.** A. 541, proposes to make it a high misdemeanor to conspire to commit a crime involving **possession, sale or use of narcotic drugs.** A. 542, proposes to make it a high misdemeanor for any person to hire, employ or use any **child under the age of 18 years** to sell, transport, and so forth, **narcotic drugs.** A. 543, proposes to authorize the state board of control of institutions and agencies to create a New Jersey facility for **treatment of drug addicts** which shall be utilized for the confinement, care, and treatment of persons who use narcotics or who have been convicted of using narcotics under the state narcotic law. A. 548, proposes, among other things, to require a person receiving **narcotic drugs** to sign an original and copy of the prescription therefor and requires copies of the prescriptions and records of drugs dispensed by physicians to be filed with the state police. A. 551, proposes to **exempt from the narcotic drug act** certain medicinal preparations which contain narcotic drugs but which also contain some other drug or drugs conferring upon the preparation medicinal qualities other than those possessed by the narcotic drug alone. A. 552, proposes to **prohibit the sale of hypodermic syringes** or needles or any instrument adapted to the use of cocaine or narcotic drugs by subcutaneous injections except by physicians, dentists, veterinarians, nurses, pharmacists, dealers in surgical instruments, or attendants or interns at hospitals, sanatoriums or institutions. A. 554, proposes to authorize the **revocation of a license to practice medicine** by the state board of medical examiners upon proof that a holder of such license habitually uses drugs. A. 555, proposes the enactment of a licensing law for the licensing and examination of **professional and practical nurses.** A. 559, proposes an appropriation to the department of institutions and agencies for the creation and establishment of a facility for the treatment **of persons using narcotics** or convicted thereof. A. 561, proposes that any person who induces or persuades any other person to use any narcotic **drug** unlawfully or aids or contributes to such use by another or contributes to the addiction of any person to the unlawful use of any narcotic drug shall be guilty of a high misdemeanor. A. 611, proposes to include **convalescent and rest homes** within the licensing requirement applicable to boarding homes and private nursing homes. A. 630, to amend the law relating to **pre-marital examinations,** proposes to authorize the necessary examination to be made by a physician licensed to unlimited practice in New Jersey or any other state or in any territory of the United States or the District of Columbia or by commissioned medical officers on active duty with the armed forces or with the public health service. Previously, the examination had to be made by just a qualified physician. A. 649, to amend the **medical practice act,** repeals the provisions of the law permitting a court to proceed in a summary manner without a jury in revocation matters. S. 61, proposes a method for providing disability, death and medical and hospital benefits for civil defense volunteers who suffer an injury as a result of participation in civil defense activities. S. 139, proposes the creation of a **board of chiropractic examiners** and defines chiropractic as the system of adjusting the articulations of the spinal column by hand only for the correction of a cause of disease. A licensee under this proposal would have the right in the examination of patients to use all scientific instruments and x-ray necessary for the purpose of analysis, but would not be permitted to prescribe, administer, or dispense drugs in the treatment of any human ailment, disease, pain, injury, deformity, mental or physical condition, or to perform surgical operations, practice obstetrics, or reduce or set fractures or dislocations. S. 227, to amend the medical practice act relating to the licensing of **chiropractors,** proposes **a new definition** of chiropractic which would provide that chiropractic is a system of adjusting the articulations of the spinal column by the hand only or the correction of a cause of disease. A licensee under this proposal would have the right in the examination of patients to use the neurocalometer, x-ray and other instruments necessary solely for the purpose of diagnosis or analysis but would not be permitted to prescribe, administer or dispense drugs for internal use in the treatment of any human ailment, disease, pain, injury, deformity, mental or physical condition or to perform surgical operations. S. 234, to amend the workmen's compensation act, proposes to authorize an injured employee to **select** to treat him **any duly licensed physician.** S. 270, proposes the enactment of a **district state health officers' law** for the purpose of establishing a closer cooperation between the state department of health and the local health boards. S. 287, to amend the medical practice act, proposes to eliminate from the provisions relating to **membership on the board of medical examiners** the requirement that three members thereof shall be homeopaths and one an eclectic.

### Virginia

**Bills Enacted.**—H. 489, has become Ch. 318 of the Laws of 1952. It amends the law relating to the powers and duties of the chief medical examiner so as to **substitute the term "medical examiner"** for the term **"coroner"** wherever the latter word appears and so as to transfer the powers and duties of coroners to medical examiners. S. 196, has become Ch. 298 of the Laws of 1952. It prohibits the sale of drugs, medicines and appliances for the **prevention of venereal disease** except by duly licensed practitioners of medicine and in pharmacies and retail stores which have obtained a permit from the state board of pharmacy. The law expressly prohibits the sale, distribution or other disposition of such appliances by means of a vending machine or other automatic machine. S. 227, has become Ch. 211 of the Laws of 1952. It amends the medical practice act by setting forth conditions under which **graduates of foreign medical schools** may be permitted to take an examination for a license to practice medicine in Virginia. If the candidate is a graduate of a foreign medical school which has been registered with the state board of education or is found by the board of medical examiners to have maintained standards equal to those of such registered schools, the applicant, must in addition to meeting the other requirements of the section, exhibit a diploma or license or certificate conferring the full right to practice in that country or, in lieu thereof, a certificate showing that the holder thereof has completed the course of study and passed examinations equivalent to those required for a diploma or license conferring such full right to practice.

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Prepared by the Bureau of Legal Medicine and Legislation.

# MEDICAL NEWS

## ARKANSAS

**State Medical Meeting at Little Rock.**—The Arkansas Medical Society will hold its annual session at the Hotel Marion, Little Rock, April 21-23 under the presidency of Dr. Charles R. Henry, Little Rock. Out-of-state speakers will include:

Herman J. Moersch, Rochester, Minn., Indications for Bronchoscopy and Bronchography in Pulmonary Disease.
Edward C. Reifenstein, Oklahoma City, Metabolic Bone Diseases.
Thomas H. Hunter, St. Louis, Subacute Bacterial Endocarditis.
Grayson L. Carroll, St. Louis, Postoperative Care to Prevent Recurrence of Kidney Stones.
Gene B. Starkloff, St. Louis, Recent Advances in Surgical Management of Peripheral Vascular Diseases
James T. Allen, New Orleans, Eye Injuries.
Harvey B. Stone, Baltimore, Diverticulitis of Colon.
Laman A. Gray, Louisville, Estrogen Therapy.
Andrew A. Marchetti, Washington, D. C., Consideration of Obstetrical Bleeding.
Albert H. Aldridge, New York, Management of Breech Presentation.
Joseph E. Markee, Ph.D., Durham, N. C., Autonomic Nervous System.

Dr. John W. Cline, San Francisco, President of the American Medical Association, will be the speaker at the annual banquet at 7:30 p. m. April 22. There will be special section meetings on internal medicine, surgery, obstetrics and gynecology, and eye, ear, nose and throat. The Woman's Auxiliary will hold its annual session at the same time.

## COLORADO

**The Sewall and Nu Sigma Nu Lectures.**—Dr. Samuel A. Levine, clinical professor of medicine at Harvard Medical School, Boston, has been chosen Henry Sewall lecturer. He will speak April 15 in Denison Auditorium of the University of Colorado Medical School, Denver, on "A Plea for the Stethoscope." The annual Nu Sigma Nu lecture will be given by Dr. Merrill C. Sosman of Boston on April 17 in Denison Auditorium on "Experiences with Cushing's Disease." During the week of April 14 both visitors will hold clinics and conferences at the University of Colorado Medical School. They will also participate in an afternoon clinic at Denver General Hospital April 14 and at Fitzsimons Army Hospital on April 16.

## ILLINOIS

**Award for Paper by Psychiatric Resident.**—The Illinois Psychiatric Society will make an award of $200 to the person who presents the most original paper on a psychiatric research problem. The author must be a resident in training of an approved psychiatric faculty or institute in Illinois. Papers should be sent to the chairman of the award committee, Dr. John J. Madden, 6 N. Michigan Ave., Chicago 2, by August 15. The prize paper will be presented at the meeting of the Illinois Psychiatric Society.

### Chicago

**Visiting Professor of Neurology.**—Dr. Theophile A. Alajouanine of Paris, France, has been appointed visiting professor of neurology at the University of Illinois College of Medicine for three months, beginning April 1. He will lecture and participate in the clinical program. Dr. Alajouanine is professor of clinical neurology and head of the clinic at the University of Paris.

**Program on Obesity and Nutrition.**—The Chicago Medical Society and the Chicago Nutrition Association will meet jointly in the John B. Murphy Auditorium at 8 p. m. April 23 to hear a discussion on "Obesity as a Nutrition Problem." The following persons will speak:

Frederick J. Stare and Jean Mayer, Ph.D., Harvard University, Boston, Experimental Obesity.
Simon Rodbard, Ph.D., Michael Reese Hospital, Chicago, Effect of Diet on Diseases of Blood Vessels.
George M. Wheatley, Metropolitan Life Insurance Company, New York, Effect of Obesity on Your Length of Life.

## LOUISIANA

**Dr. Wickstrom to Head Department.**—Dr. Guy A. Caldwell, professor of orthopedic surgery at Tulane, has resigned from the chairmanship of the department of orthopedics but will continue in the professorial rank. Dr. Jack K. Wickstrom, associate professor of orthopedic surgery since 1945, has been named to the chairmanship of the department.

## MICHIGAN

**Immunization Schedules.**—Newly revised immunization schedules to protect babies at an earlier age were announced March 26 by the department of health. According to the new schedules, immunization against diphtheria, tetanus, and whooping cough should begin when the baby is 3 months old. Formerly, the department recommended immunization for these diseases be underway by the time the baby was 6 months of age. These reasons were given by the department for recommending the start of immunizations at a younger age. 1. Over half of all whooping cough deaths in Michigan occur in children under 6 months of age. 2. Continued low prevalence of diphtheria is resulting in more rapid loss of artificial immunity in the population, with the result that more babies are being born without the protection that normally would be transferred from the immune mother to the baby. 3. Most deaths from tetanus are the result of trivial wounds that do not come to the attention of a physician. The state health department also recommends that smallpox vaccination be given at 5 months of age, whereas previously they recommended it be completed by the end of the first year. Booster doses for protection against diphtheria, tetanus, and whooping cough are recommended at the ages of 2-3 years; and for diphtheria, tetanus, and smallpox at 5-6 years of age and again at 10 years.

## MINNESOTA

**Dr. Lambert Receives Tuttle Memorial Award.**—Dr. Edward H. Lambert, Rochester, is the first recipient of the Arnold D. Tuttle Memorial Award, which is to be given annually to "that individual whose paper has been published in the *Journal of Aviation Medicine* during the previous year and is deemed to be the most significant in terms of its research value." The award was presented to Dr. Lambert in Washington, D. C., March 19.

## NEW JERSEY

**Exchange Training of German Physicians.**—Through the efforts of Dr. Hilton S. Read, Atlantic City, a private agency is supervising exchange training for 28 young German physicians in New Jersey. These medical school graduates from Germany are spending 16 months as interns in New Jersey community hospitals. They are paid regular stipends averaging $100 a month. From this the cost of their passage has been deducted. Several individuals and groups have supplemented the meager sum remaining with gifts.

## NEW MEXICO

**Dr. Carl Mulky Honored.**—Dr. Carl Mulky of Albuquerque was honored in Socorro Jan. 31 at the New Mexico Medical Advisory Conference, sponsored jointly by the New Mexico Medical Society and the New Mexico Department of Public Welfare. The day was designated as "Carl Mulky Day" in recognition of Dr. Mulky's entering his 50th year of medical practice, his many services to the state, and his fight against tuberculosis. Dr. Mulky has served as president of Bernalillo County Medical Society, the New Mexico Medical Society, and the New Mexico Tuberculosis Association; he is president of the New Mexico Trudeau Society, chief consultant to the New Mexico State Tuberculosis Sanatorium, and consultant to the United States Indian Service and the Veterans Administration Hospital in Albuquerque.

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

## NEW YORK

**State Rheumatism Association Meeting.**—The annual meeting of this association will be held at New York University Medical College on April 16 beginning at 8 p. m. Eight New York City physicians will present papers.

**Physicians Needed for Camp Infirmaries.**—Cejwin Camps, Port Jervis, has openings for physicians in the infirmary of the boys' and girls' camps. Each infirmary has a staff of two physicians and five nurses during the months of July and August. Physicians should be available for one month or for both July and August. The salary is $600 for two months or $300 for one month, plus full maintenance in either case. Cejwin Camps, a nonprofit organization, is entering its 34th year of operation. Information may be obtained from Herman L. Sainer, Director of Cejwin Camps, 231 W. 83rd St., New York 24.

### New York City

**Cornell Medical Alumni Reunion.**—Cornell medical alumni will hold their annual reunion April 18-19 at the college. There will be addresses by visiting alumni, Drs. Jack Masur, assistant surgeon general, U. S. Public Health Service, Max B. Lurie of the Henry Phipps Institute in Philadelphia, and Henry H. Kessler, director of the Kessler Institute for Rehabilitation, West Orange, N. J. The annual award to an alumnus "for distinguished service to medicine" will be presented to Dr. Nils P. Larsen, Honolulu, Hawaii. There will be ward rounds, clinics, and conferences. A special feature will be a symposium on medical practice by six visiting graduates.

**City Appeals for Nurses.**—An appeal to women of 40 or more to seek a "belated career" in nursing has been made by Dr. Marcus D. Kogel, commissioner of hospitals, in a letter to 25 major counseling groups and women's organizations. The letter was prompted by the nursing shortage in the municipal hospitals, a shortage which Dr. Kogel described as being so serious as to threaten a lowering of the department of hospital's standards of medical care. He asked the aid of these groups in convincing women of 40 or beyond that nursing offers "an excellent prospect for what might be called a belated career."

## PENNSYLVANIA

**Rabies in Foxes.**—The state game commission and citizens of afflicted areas are carrying on a drive to rid the state of 95,000 foxes as carriers of rabies, according to the Associated Press March 14. Many persons have been bitten by foxes and at least two have died. The foxes have attacked men, women, and children, bitten dogs, poultry, sheep, pigs, and cattle, and hurled emselves at automobiles on the road. The most afflicted areas e in eastern Pennsylvania and parts of the west, although arauding foxes have been reported also in the midland. Some county and township officials have urged people to stay away from highways and streets in smaller towns in the late afternoon and night.

### Philadelphia

**Lecture on Egyptian Medical Papyri.**—The section on medical history of the College of Physicians of Philadelphia will be addressed on April 17 by Dr. Chauncey D. Leake, vice-president and dean of the University of Texas Medical Branch, Galveston, on "The Old Egyptian Medical Papyri." The lecture is supported by the Kate Hurd Mead Class of 1888 Fund of the Woman's Medical College of Pennsylvania.

## TEXAS

**Narcotic Violation.**—Dr. Asa Brunson, Caples Building, El Paso, pleaded guilty at El Paso to a violation of the federal narcotic law. On Jan. 9 he was sentenced to a term of one year and one day, which was suspended, and he was placed on probation for two years.

**The John McReynolds Lecture.**—Dr. Harold G. Scheie, clinical professor of ophthalmology, University of Pennsylvania Medical School, Philadelphia, will give the annual John McReynolds Lecture in Ophthalmology at the University of Texas Medical Branch, Galveston, April 18 at 4 p. m. Dr. Scheie will speak on "Retinal Vascular Changes in Hypertension." That evening he will address the Houston Ophthalmological Society.

## VIRGINIA

**Society News.**—The Alexandria Medical Society will hold its third annual Clinic Day for physicians of Northern Virginia on April 27. The program will be given in cooperation with the faculty of the University of Maryland. Four papers will be presented by Drs. Milton S. Sacks, Maurice H. Greenhill, Robert T. Parker, and Otto C. Brantigan. In addition, there will be a panel presentation on ulcerative colitis, by Drs. Parker, Brantigan, Ephraim T. Lisansky, and Jacob Finesinger. Dr. Finesinger will also discuss "What and How to Tell the Cancer Patient." The registration fee of $2 should be sent to the Alexandria Medical Society, Post Office Box 192, Alexandria.

## WASHINGTON

**Course in Gynecology.**—The University of Washington School of Medicine, Seattle, is presenting a postgraduate course in gynecology at the Health Sciences Building April 21-24. The fee is $40, which should be sent to the Division of Postgraduate Medical Education, University of Washington School of Medicine, Harborview Hospital Annex, 9th and Jefferson, Seattle 4.

## WEST VIRGINIA

**Personal.**—Dr. Thomas G. Reed of Charleston, a past president of the West Virginia State Medical Association, has been named a member of the executive board of the new Medical-Service Plan, Inc., a non-profit collection plan for doctors, dentists, and hospitals.

**State Health Week.**—Gov. Okey L. Patteson has issued a proclamation setting aside the week of April 20 for observance as "Health Week" in West Virginia. The proclamation was issued after consideration by him of the unanimous request of the council of the West Virginia State Medical Association that such action be taken.

## GENERAL

**Dr. Dakin Dies.**—Dr. Henry D. Dakin, D.Sc., F.R.S., who brought into use during World War II the hypochlorite solution that bears his name, died at Scarborough-on-Hudson, N. Y., on Feb. 10. A native of London, Dr. Dakin came to the Herter Laboratory in New York in 1905 and had a long and distinguished career in medical research. He is best known for his study of the intermediary metabolism of amino acids and fatty acids, though he worked on enzymes and discovered and studied the properties of the enzyme glyoxalase.

**Regional Meeting of Surgeons.**—A central states regional meeting of the United States Chapter of the International College of Surgeons will be held in Kansas City April 28-29, with headquarters at the President Hotel. Members of the surgical profession at large are invited to attend. The program will include scientific sessions each morning from 9 to 12 and each afternoon from 2 to 5 and luncheons followed by panel discussions each day. At a social hour and dinner on the first evening David L. MacFarlane, Ph.D., president of Kansas State Teachers College, Emporia, will be the speaker. The buffet dinner on the second evening will be followed by a panel discussion of a "Mystery Case." This will be a joint session with the Jackson County Medical Society.

**Heart Association Meeting in Cleveland.**—The American Heart Association will hold its annual meeting April 17-20 at the Hotel Statler in Cleveland. There will be special programs for lay members and a new feature for physicians and research scientists: two special sessions devoted to papers dealing with basic science aspects of cardiovascular disease. The special programs designed primarily for laymen will run concurrently with the scientific sessions on Friday. A morning session, entitled "Your Heart Association in Action," will feature reports on research, education, and community service activities of affiliated heart associations. The afternoon session, "Doctors Meet the Press," will feature a question and answer program in which four heart specialists and four science writers will discuss cardiovascular problems. The "Experimental Program," which will include basic science reports, will run concurrently with the regular scientific sessions on Saturday. At the annual dinner on Friday the chief speaker will be Dr. Claude E. Forkner, New York, who will speak on "Iran is Ill—A Physician's Consultation." A three day staff training conference for personnel of affiliated heart associations will be held from April 14-16 at the Hotel Hollenden in Cleveland.

**Southern States Aid Medical Education.**—The formation of a 14-state compact that disregards state lines in providing aid to education in medicine, dentistry, veterinary medicine, and social work is helping to solve professional education problems in the South. Eleven states have given over a million dollars for distribution to eight medical schools. Meharry Medical College has received over a half million dollars; Emory University, $174,000; University of Tennessee, $146,500, and Tulane, $123,000. The money was used to cover the education of 363 medical students. The states participating are Alabama, Florida, Georgia, Louisiana, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Texas, and Virginia. Funds to Meharry Medical College have enabled the school to survive and to raise the quality of its program. There has been a steady increase in enrolment in medical schools under the program, it is reported, enrolment having risen from 151 during the 1949-50 year to 232 the following year. The estimate for the current year is 363. The board is known as the Southern Regional Education Board.

**American Gynecological Society.**—The annual meeting of this society will be held May 12-14 at the Homestead in Hot Springs, Va., under the presidency of Dr. Walter T. Dannreuther, New York. Those speaking by invitation include:

Edwin J. DeCosta, Chicago, Effect of Cortisone on Ovulation and Gestation.
Carl T. Javert, New York, Spread of Benign and Malignant Endometrium in the Lymphatic System.
Ronald R. Greene, Chicago, Diverse Origins of Brenner Tumors.
S. Leon Israel, Philadelphia, Empiric Usage of Low-Dosage Irradiation in Amenorrhea.
Charles E. McLennan, San Francisco, Current Concepts of Prolonged or Irregular Endometrial Shedding.

The guest speaker at the Monday session at 8 p. m. will be Dr. Thomas N. A. Jeffcoate, professor of obstetrics and gynecology at the University of Liverpool in England, who will speak on "Stress Incontinence of Urine." At the annual dinner on Tuesday at 8 p. m. Dr. Charles Gordon Heyd, New York, will speak on "The Value of Standards."

**American Dermatological Association.**—This association will hold its annual meeting at the Hotel Broadmoor in Colorado Springs April 23-26 under the presidency of Dr. Edward A. Oliver, Chicago. The papers to be given include the following:

Harry J. Templeton, Oakland, Calif., Ultrasonic Vibrations—A Possible Tool for Investigative Dermatology.
Joseph M. Hitch, Raleigh, N. C., Action of Cortisone on Several Types of Insults to the Skin and Eye in Experimental Animals.
John F. Madden, St. Paul, Pancreatic Function and X-Ray Studies in Psoriasis.
Stephen Rothman, Chicago, Systemic Disturbances in Trichophyton Purpureum Infections.
Arthur C. Curtis, Ann Arbor, Mich., Use of Two Stilbene Derivatives (Diethylstilbestrol and Stilbamidine) in the Treatment of Blastomycosis.
Clarence S. Livingood, Galveston, Texas, In-Vitro Effect of Neomycin on Bacteria Isolated from Cutaneous Pyogenic Infections.
Maurice Sullivan, Baltimore, Treatment of Condyloma Acuminatum with the Peltatins: Preliminary Report.
Harry L. Arnold Jr., Honolulu, Hawaii, Stress Dermatoses.
Walter C. Lobitz Jr., Hanover, N. H., Physiologic Studies in Atopic Dermatitis.
Charles J. Lunsford and Herman V. Allington, Oakland, Calif., Use of Chemosurgery in Dermatological Practice.

**Anthrax in Swine in Ohio and Indiana.**—According to F. H. Wentworth, Ohio Department of Health, an investigation by A. W. Greenlee, veterinarian, shows that swine anthrax in Ohio has occurred on 77 farms in 26 counties, the first case occurring during the first week of February, the U. S. Public Health Service reports. The initial investigation incriminated feed manufactured by one producer as the source of infection, and no evidence of animal to animal spread was found. The outstanding supplies of the feed have been recalled, and decontamination of the infected material has begun. The Ohio Department of Health reports that anthrax organisms have been cultured from the feed and from bone meal, the only previously uncooked component of the feed. In addition to the case of anthrax previously reported in a laboratory worker, a second case, a carpenter who has been working in a feed mill, has been reported to the health department. No further details regarding this patient were available March 22. J. D. Salisbury, Indiana Board of Health, reports further occurrence of swine anthrax in Indiana. Confirmed cases have been reported in counties in the eastern part of the state adjacent to Ohio. As yet no isolation of anthrax spores has been made from samples of unopened bags of suspected feed products.

**WHO Experts Outline Methods for Trachoma Control.**—According to conclusions reached by the World Health Organization's Expert Committee on Trachoma meeting in Geneva in March, trachoma is curable, and in the light of present knowledge should be considered in general only mildly contagious except in young children. Aureomycin and terramycin were found by the experts to be the most effective drugs in the treatment of the disease. The committee outlined a model control plan for attacking this disease in underdeveloped areas. The prevention of the spread of trachoma in international travel must henceforth be based on the fact that it is only mildly contagious, the experts emphasized. From the point of view of world traffic, a distinction must be made between travelers in transit and immigrants. Chronic trachoma cases can be accepted in transit travelers without quarantine restrictions, the committee stated. Those with acute forms should be treated until they become noncontagious before embarking for international travel. The medical examination of prospective migrants should be carried out twice at two-month intervals. The first examination would allow finding and treatment of trachoma cases; when cured, the patient would receive at a second examination a medical certificate permitting emigration. To facilitate interpretation of medical certificates, the committee proposed the universal adoption of specific trachoma nomenclature that would supersede all other classifications.

## FOREIGN

**Cancer Meeting in Vienna.**—Nine United States surgeons will participate in a symposium on carcinoma to be held under the auspices of the Austrian Chapter of the International College of Surgeons in the Faculty of Medicine, University of Vienna, May 26 and 27. Dr. Felix Mandl will give details about the meeting in reply to inquiries directed to him at Reichsratstrasse 11, Vienna 1, Austria. The speakers from the United States will be Drs. Harry E. Bacon of Philadelphia, Oswald S. Lowsley of New York, Frank Teller of Brooklyn, M. Leopold Brodny of Boston, Robert H. Abrahamson of Stamford, Conn., Edward L. Compere, Chicago, Arnold S. Jackson, Madison, Wis., Roland M. Klemme, St. Louis, and Samuel L. Perzik, Beverly Hills, Calif.

## DEATHS IN OTHER COUNTRIES

**Dr. Pedro Ramos Baez**, San Miguel de los Baños, member of the Cuban Science Academy, died Dec. 11, aged 56. Dr. Ramos Baez for 20 years had been director of the San Miguel de los Baños spa.——**Sir Richard Luce, F.R.C.S.**, for many years senior surgeon to the Derbyshire Royal Infirmary, died Feb. 22. Sir Richard had served as a Conservative Member of Parliament and for years as a member of the Council of the British Medical Association.——**Alfred R. Parsons, F.R.C.P.I.**, an original member of the Association of Physicians of Great Britain and Ireland and vice-president of the Royal Academy of Medicine in Ireland, died Jan. 24 in Dublin. In 1894 he was appointed visiting physician to the Royal City of Dublin Hospital, a position he held until his death.——**Sir Charles S. Sherrington, M.D., F.R.C.P., and F.R.C.S.**, who laid the foundations of our knowledge of the functioning of the brain and spinal cord, and who in 1932 received the Nobel prize in physiology and medicine jointly with Dr. E. D. Adrian, died March 4, aged 94. He was a past president of the British Medical Association.

## CORRECTION

**Coronary Occlusion and Coronary Insufficiency.**—In the article on this subject by Master and Jaffe in The Journal, March 8, 1952, page 794, the electrocardiograms were transposed. Figure 1 should have been labeled figure 2 and vice versa.

# DEATHS

**Smith, Harold Wellington** ⊕ Rear Admiral, U. S. Navy, retired, Washington, D. C.; born in Boston May 30, 1878; Harvard Medical School, Boston, 1901; after three years' residency in the Massachusetts General Hospital, was appointed assistant surgeon in the Navy; advanced to the rank of rear admiral in 1938, to date from July 1, 1936; served during World War I; from September, 1921, to June, 1923, was in charge of the division of planning and publications, Bureau of Medicine and Surgery, Navy Department, and in August, 1923, was assigned to command the U. S. Naval Hospital, Canacao, Philippine Islands; in 1925 was ordered to duty as director of personnel, Bureau of Medicine and Surgery; in 1929 reported to the Naval War College, Newport, R. I., and assumed command of the U. S. Naval Hospital in Newport; in 1932, was assigned to command the Naval Hospital, League Island, Pa., where he served until June 1934; for the next four years served as commanding officer of the Naval Medical School, Washington, D. C.; in 1938 became commanding officer of the Naval Medical Center, serving until 1941, when he was placed in charge of medical research, Bureau of Medicine and Surgery; in the latter assignment was a member of the committee on medical research, Office of Scientific Research and Development; for his achievements in medical research was awarded the Legion of Merit; retired in June, 1942, but continued on active duty until December, 1946; held the Victory Medal (Escort Clasp) American Defense Service Medal, the American Campaign Medal, and the World War II Victory Medal; in 1942 received honorable mention from the American Medical Association for his exhibit on the Medical Department of the U. S. Navy; member of the House of Delegates of the American Medical Association from 1941 through 1945; member of the executive council, Association of Military Surgeons of the United States, board of governors of the American College of Surgeons, American Academy of Tropical Medicine (counsellor), American Society of Tropical Medicine, Washington (D. C.) Academy of Medicine, board of honorary consultants, Army Medical Library and board of directors of the Gorgas Memorial; helped to develop new medical devices and techniques, particularly in the fields of aviation and submarine medicine, including the development of the "black-out suit," body armor and the sea-water drinking kit; died in the U. S. Naval Hospital, Bethesda, Md., Feb. 4, aged 73, of cerebral thrombosis.

**Blenckstone, Frederick Otto,** Oradell, N. J.; New York University Medical College, New York, 1897; died Dec. 1, aged 76, of chronic myocarditis.

**Cummings, Clement Anthony,** Wilmette, Ill.; John A. Creighton Medical College, Omaha, 1916; medical director of the Public Health Institute of Chicago until his retirement two years ago; died in Francis Anne Lutcher Hospital, Orange, Texas, Feb. 26, aged 59, of injuries sustained in an automobile accident.

**Ferguson, Richard E.,** Elmo, Mo.; Ensworth Medical College, St. Joseph, 1906; died in St. Joseph, Dec. 25, aged 79, of coronary thrombosis.

**Frandy, Mervyn Francis** ⊕ Oakland, Calif.; University of California Medical School, San Francisco, 1920; died Feb. 17, aged 57, of coronary occlusion and generalized arteriosclerosis.

**Gain, J. Cameron** ⊕ Jeffersonville, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1904; for many years county coroner; health officer of Callicoon; served as president of the First National Bank for many years; affiliated with Callicoon (N. Y.) Hospital and Maimonides Hospital in Liberty; died Feb. 18, aged 75, of carcinoma.

**Gordon, Harry,** Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1922; died Jan. 24, aged 56, of carcinoma of the pancreas.

**Haage, Delbert Otto,** Augusta, Kan.; University of Kansas School of Medicine, Kansas City, 1933; member of the American Medical Association; died Dec. 7, aged 47, of cerebral accident.

**Haley, Richard,** Chicago; Rush Medical College, Chicago, 1890; affiliated with Mercy, Wesley, Evangelical, and Lutheran Deaconess Home and hospitals; died Feb. 16, aged 90, of chronic nephritis.

**Hill, Robert McKendree Caleb,** McLoud, Okla.; Toledo Medical College, 1886; member of the American Medical Association; died Nov. 22, aged 91, of coronary occlusion.

**Holbrook, Ralph W.,** Perkins, Okla.; Marion-Sims College of Medicine, St. Louis, 1889; member of the American Medical Association; died Nov. 17, aged 80, of cancer and heart disease.

**Holt, Calvin Zeno,** Los Angeles; University of Arkansas School of Medicine, Little Rock, 1912; member of the American Medical Association; formerly on the faculty of the University of California Medical School; served during World War II; died in Palm Springs Nov. 29, aged 62.

**Hoxsey, George Eldred** ⊕ Wenatchee, Wash.; University of Oregon Medical School, Portland, 1927; died Dec. 31, aged 56, of bronchopneumonia following a gastrectomy.

**Iknayan, Nicholas C.** ⊕ Charleston, Ill.; Northwestern University Medical School, Chicago, 1896; past president of the Coles-Cumberland Counties Medical Society; died Nov. 27, aged 84, of acute cardiac failure secondary to chronic myocarditis.

**Iseman, Charles McClellan** ⊕ Ellwood City, Pa.; Medical Department of the Western University of Pennsylvania, Pittsburgh, 1894; died recently, aged 83, of coronary occlusion and arteriosclerosis.

**Jamieson, George Vere** ⊕ Walla Walla, Wash.; Rush Medical College, Chicago, 1913; since Sept. 17, 1931, employed by Veterans Administration; died in the Veterans Administration Hospital Nov. 30, aged 62, of coronary thrombosis and arteriosclerosis.

**Jelte, Safford Anthony,** Oakland, Calif.; University of Arkansas School of Medicine, Little Rock, 1919; also a graduate in pharmacy; member of the American Medical Association and the Radiological Society of North America; specialist certified by the American Board of Radiology; past president of the Alameda County Medical Society; for many years affiliated with Alameda (Calif.) Hospital and Providence Hospital; died Nov. 18, aged 59, of coronary sclerosis.

**McCartan, Edward Luke,** Los Angeles; Creighton University School of Medicine, Omaha, 1922; member of the American Medical Association; died Dec. 12, aged 54, of cancer of the larynx.

**Merkle, Henry John,** Los Angeles; Northwestern University Medical School, Chicago, 1925; member of the American Medical Association; died Dec. 17, aged 53, of acute myocardial infarction and coronary thrombosis.

**Mixon, Aaron Malochi,** Spiro, Okla.; Memphis (Tenn.) Hospital Medical College, 1903; member of the American Medical Association; died in the Eastern Oklahoma State Tuberculosis Sanatorium, Talihina, Nov. 28, aged 85, of tuberculosis.

**Ransom, Frederick Gerald** ⊕ Jackson, Mich.; University of Michigan Medical School, Ann Arbor, 1923; died Dec. 31, aged 51, of coronary occlusion.

**Redner, M. Ruth Worrall,** Monroe, N. Y.; New York Medical College and Hospital for Women, Homeopathic, New York, 1892; died recently, aged 82.

**Rogers, Isaac Walton,** Muskogee, Okla.; Chattanooga (Tenn.) Medical College, 1906; died Nov. 12, aged 60.

**Senn, George A.** ⊕ Green Bay, Wis.; Rush Medical College, Chicago, 1904; died Oct. 1, aged 75, of heart failure.

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⊕ Indicates Fellow of the American Medical Association.

# GOVERNMENT SERVICES

## ARMY

**Rocket Research Aids New Tuberculosis Drug Production.**—The Army Ordnance Corps is deferring deliveries of a chemical compound called hydrazine, being experimented with as a rocket propellant, so that more of it may be used to produce drugs that have brought dramatic improvement in tuberculosis patients. In making the announcement, the Army revealed how the fight of medical science against tuberculosis has found unexpected aid in Army Ordnance Corps research on rockets. Until 1946 no volume production of hydrazine had been undertaken. At that time hydrazine showed promise as an improved rocket propellant. Army Ordnance sponsored large-scale manufacture of the compound by the Mathieson Chemical Corporation of Niagara Falls, N. Y. A production base for the vital compound thus was established.

Medical researchers experimenting with the new drugs have pointed out that clinical tests are as far advanced at this time only because Army Ordnance sponsored volume production of hydrazine for its research program. The voluntary release of additional quantities of the compound into commercial channels will assure continuation of these tests. The drugs are being tested at New York hospitals. More than 200 patients sick with tuberculosis, and whose cases appeared to be hopeless, have been treated. Almost all are improving (The Journal, March 22, 1952, p. 1034). While the drugs are not yet considered a cure for tuberculosis, results of tests have been most encouraging.

## NAVY

**Navy Accepts 108 Seniors for Training.**—A total of 108 senior medical students, who will graduate from medical schools throughout the United States in 1952, have been accepted for intern training at U. S. Naval Hospitals beginning July 1, 1952, under the Navy's graduate medical training program, Rear Admiral Lamont Pugh, Surgeon General, announces. The students will be appointed lieutenants (jg) in the Medical Corps, Naval Reserve, following graduation and will then be ordered into active military service and assigned to Naval Hospitals approved for intern training by the American Medical Association's Council on Medical Education and Hospitals.

**Guest Lecture.**—The fifth lecture of the present guest lecture series was presented in the National Naval Medical Center Auditorium, Bethesda, Md., Feb. 29 by Dr. George Crile Jr. of the Cleveland Clinic on "Present Status of Treatment of Disease of the Thyroid Gland."

**Personal.**—Rear Adm. Frederick C. Greaves, MC, reported to the Navy's Bureau of Medicine and Surgery March 10 for duty as inspector general, medical.

## PUBLIC HEALTH SERVICE

**Dr. Gillis Assigned to Lebanon.**—Eugene A. Gillis, M.D., of the Public Health Service, has been appointed chief of the health division of the Technical Cooperation Mission to Beirut and will soon leave for Lebanon, the Surgeon General has announced. He will be in charge of the health program of the TCA Mission working in cooperation with the Ministry of Health of Lebanon, and will act as consultant to the Ministry of Health in developing additional health programs. His duties will also entail the supervision of such Point Four projects as the development of educational and training projects for health personnel and the supervision of health demonstration units in rural areas. The Technical Cooperation Mission to Lebanon is part of the Point Four technical assistance program of the Department of State. Dr. Gillis was commissioned in the Public Health Service in 1934. In 1937 he was director of the Dyer County Health Department, Dyersburg, Tenn.; from 1939 until 1943, he held two posts with the Oklahoma State Health Department, serving first as director of the communicable disease division and then as director of the venereal disease division. Since his assignment to Washington in 1945, Dr. Gillis has been assistant chief of the venereal disease division, assistant chief and chief of the division of commissioned officers. He is a diplomate and consultant of the American Board of Preventive Medicine and Public Health.

## VETERANS ADMINISTRATION

**Residencies Available.**—Residencies in otolaryngology are available at the Veterans Administration Hospital, Bronx, New York, beginnnig July 1, 1952. This is a fully approved three year residency and includes training in endoscopy, rhinoplasty, head and neck surgery, and the basic science of otolaryngology. The training is supervised by a consultant staff under the direction of the dean's committee. Dr. David H. Jones, 140 East 54th St., New York City, will be pleased to offer additional information to interested physicians.

An approved three year residency training program in psychiatry is available at the new Veterans Administration Hospital in Seattle. This training program is under the direct supervision of the department of psychiatry at the University of Washington Medical School, of which Dr. Herbert S. Ripley is professor and chairman of the department. In the absence of a university hospital, this hospital is active in fulfilling the needs of the medical school in that regard. Affiliated with the training program at the hospital is an arrangement by which the resident can obtain experience in the outpatient department at the King County Hospital, the Child Guidance Clinic of the University of Washington Medical School, American Lake Veterans Hospital, and the Mental Hygiene Clinic.

This hospital has 100 beds allotted to neurology and psychiatry and provides an adequate number of patients for an excellent resident training program. Salary range is from $2,400 for the first year to $3,000 for the third year.

**VA Hospitals to Be Completed in 1952.**—The Army Corps of Engineers is scheduled to complete construction this year on 10 more hospitals and a hospital addition for the Veterans Administration. When completed, the hospitals will make available a total of 7,088 beds. The cost of construction is more than $108,000,000.

With the completion of these 11 projects, the Army Corps of Engineers will have constructed 42 of 44 hospital projects for the Veterans Administration since the program began in 1946. Construction on the other two has started. The location and size of the hospitals scheduled to be completed this year are: East Orange, N. J., 949 beds; Pittsburgh, 956 beds; Boston, 949 beds; West Haven, Conn., 880 beds; Jefferson Barracks, Mo., 544 beds in a hospital addition; Salt Lake City, 546 beds; Durham, N. C., 491 beds; Birmingham, Ala., 487 beds; Kansas City, Mo., 498 beds; New Orleans, 493 beds; and Baltimore, 295 beds.

**More Radioisotope Units.**—The authorization of four additional radioisotope units in Veterans Administration hospitals now nearing completion was announced by Adm. Joel T. Boone, chief medical director. These new units will be located in Iowa City, Iowa, New Orleans, Atlanta, and Durham, N. C. In each hospital, facilities will be provided for qualified personnel to utilize radioisotopes in biological and medical research, in clinical diagnostic studies, and in clinical therapy when appropriate. The activities of each unit will be conducted in close cooperation with, and under the advisory guidance of, a committee from the staff of the local medical school. The four new units bring the authorized units in the VA radioisotope program to a total of twenty.

**Personal.**—Dr. John C. Nunemaker has been appointed chief of the research division, research and education service, Department of Medicine and Surgery, in Washington, D. C. A diplomate of the American Board of Internal Medicine, he has been active in research, one of his chief interests having been arthritis.

# FOREIGN LETTERS

## BRAZIL

**BCG and Leprosy.**—Dr. Nelson Souza Campos recently reviewed the information on leprosy. He first discussed the pathogenesis, which is not fully understood because of the impossibility of culturing or animal inoculation of the bacillus. The author divided the clinical types of the disease into chronic benign and acute serious cases. The lesions are essentially polymorphous, and the evolution of the clinical forms is variable. These and other aspects of the disease are not yet entirely understood. It seems that the leprosy bacillus do not occur as different strains. Thus, the clinical evolution must depend on the predisposition or the resistance of the body.

Contact alone is not sufficient to produce the disease. The individual must have a certain predisposition if infection is to occur. Prophylaxis in leprosy is, in the author's opinion, based on immunologic principles. The immune allergic status in leprosy may be measured by the lepromin test. Observation and experimentation have proved that lepromin positive persons are resistant to infection, and those who are lepromin negative are susceptible. The high percentage of positive tests among healthy persons in countries where leprosy is endemic or even absent makes one think a positive test is not solely the consequence of a specific reaction of the body to a previous leprosy bacillus infection. Other factors must be involved in this phenomenon. The author pointed out the high prognostic value of the lepromin test, which, when positive, reveals the benign cases, easily curable or curable spontaneously, and when negative, reveals the malignant forms.

Dr. Nelson Souza Campos mentioned his experience with BCG vaccine given to a group of young children who subsequently had a positive Mitsuda test. He concluded his report by calling attention to the need for similar studies in other centers, taking different samples of the population and observing the results over a longer period. Mass lepromin testing would also be useful among those immunized by BCG vaccine, particularly in places where this method has been used for many years. From the generalized adoption of BCG vaccination in a known area of leprosy prevalence, in time, one could get data that might justify compulsory vaccination.

**The Biliary-Pancreatic Reflux.**—Recent clinical and experimental studies attribute increasing importance to the biliary-pancreatic reflux as an etiological factor of certain chronic and acute biliary and pancreatic diseases. For those who claim the reflux as the etiological agent of biliary and pancreatic affections, it is important to search for the existence of a common bile-pancreatic duct in patients who have these entities. By cholangiographic examinations, Dr. Plínio Bove, of Hospital das Clinicas of the Medical School of São Paulo, demonstrated a common bile-pancreatic duct in 50% of a group of patients. Through the finding of pancreatic enzymes in the bile he could observe in 98% of the patients the intercommunication between hepatic and pancreatic external secretions.

The technique employed by Dr. Bove consists of collecting the bile by a Kehr's tube and determining the amount of amylase. If there is a high content of this enzyme, it may be safely concluded that the patient has a common duct. Amylase may not be present if the pancreas is not secreting it at the moment the test is done. In this case, the pancreas may be stimulated by an injection of methacholine (mecholyl®) chloride. Methacholine chloride causes abundant salivation and secretion of pancreatic juice along with other correlated phenomena. The bile collected after this stimulation is likely to contain pancreatic enzymes in higher concentrations. It may be that exaggerated permeability of the ostium of the duodenal papilla prevents a pancreatic juice reflux into the choledocus. This may be avoided in some cases by injecting 10 to 20 mg. of morphine, which increases the tonus of the sphincter of Oddi and contracts the duodenal walls. If the ampulla is large and there is no exaggerated irritability of the choledocus sphincter, the reflux is helped. If the ampulla is small and is situated in the duodenal wall or if the choledocus sphincter is exaggeratedly irritable, the morphine has an opposite effect, as the spastic contraction of those structures interrupts the common channel. Simultaneously with collecting the bile, which is done before and after the methacholine chloride injection and the morphine, pressured variations are produced by these drugs. These data give a measure of the irritability of the sphincter system and also show the existence of anatomic alterations.

Analyses of 46 examinations enabled Dr. Plínio Bove to draw the following conclusions. 1. Whenever the amount of amylase in the bile reaches a significant level, we may infer the existence of an actual common duct or, at least, of a potential duct. 2. The pancreatic origin of the amylase found may be affirmed either by its high concentration or by the comparative study of the tests done before and after the papillectomy. The tests that were positive before the operation will become negative after it. As the papillectomy interrupts the common duct, the reflux is no longer possible. 3. The test was positive in 98% of the patients who did not undergo the papillectomy or before the operation. Such a high incidence of common duct in sufferers from bile pancreatic system disorders constitutes a strong argument in favor of the importance of the reflux as an etiological agent of those diseases. 4. We had no serious reactions from the test, either in the pancreas or in the biliary tract. Some discomfort, such as discomfort caused by intensive salivation, is frequent; however, this does not constitute a contraindication to the test. Neither does the test require special precautions for its employment.

## ITALY

**Physiopathology of Senescence.**—Professor Bastai, who was recently appointed director of the University of Turin Medical Clinic, discussed in his introductory lecture the pathogenesis and incidence of cardiovascular diseases in old persons. He said that the duration of human life has almost doubled during the last 50 years and that this represents one of the greatest achievements in the history of human progress; he noted, however, that this progress also has its negative points. The incidence of diseases characteristic of old age, such as malignant tumors and cardiovascular disease, is increasing. In Italy, about 31% of the population's total mortality is due to cardiovascular disease. According to Bastai, the main factor in the phenomena of senescence is the involutive process of the capillary system. On the basis of this hypothesis, the cells, tissues, and organs of the old person function precariously, because of a lack of blood and nourishment attributable to a diminution of the capillary bed. The blood flow in old persons is, in general, only sufficient to assure adequate nourishment to tissues functioning at a level of basal or nearly basal metabolism. A deficiency in detoxication also is present in old persons.

Professor Bastai did not overlook the theory that old age and necrosis of tissue are due to a disturbance of the protoplastic colloids (hysteresis), but he asserted that the phenomena of senescence are consequences of disturbances in the internal environment originating from poor blood supply. A physiopathological study of the kidney is of importance in understanding these phenomena. Modern studies of the amount of blood circulating through the kidney per unit of time, the amount of glomerular filtrate, and the amount of filtrate reabsorbed by the renal tubule support the conclusion that a severe and progressive decline in the activity of the kidney occurs with the approach of old age. Professor Bastai emphasized that variation in blood flow is not limited to the kidney, but involves all other organs. He also mentioned the relation between capillaropathy, which is peculiar to old age, and arteriosclerosis; he concluded that although arteriosclerosis is a disease in itself and is not physiopathologically related to senescence, capillaropathy may facili-

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The items in these letters are contributed by regular correspondents in the various foreign countries.

tate its onset if it spreads to the larger arterioles or if it causes abnormal humoral conditions. Of great importance in connection with the latter are alterations in the metabolism of lipids that culminate in an excessive accumulation of cholesterol in the blood and tissues. Attachment of cholesterol to the vessels is today considered to be one of the main factors in the pathogenesis of arteriosclerosis.

**Convention of Occupational Medicine.**—The 17th National Convention of Occupational Medicine took place in Viareggio, under the chairmanship of Dr. Mario Barsotti. Professor Pancheri of Rome discussed the duties of factory physicians. These are mainly of a prophylactic nature and concern, especially, sanitary protection of the workers and prevention of accidents. He advocated the institution of a health program for the worker, which, however, must not involve the worker financially. According to Pancheri, the factory physician, preferably a specialist in occupational medicine, may practice his profession for the firm by whom he is employed outside its factory. He expressed the hope that the Minister of Labor will, as soon as possible, make it compulsory for each firm to have a factory physician and that he will ask the Minister of Public Education to set down rules concerning the teaching of occupational medicine in all universities.

Dr. Barsotti also reported on the toxicity of new insecticides containing organic phosphorus and preventive measures against this in their fabrication and use. The toxic action of these products may be caused by the inhibition of cholinesterase, with an increase of acetylcholine in the blood and nervous tissues and subsequent increased stimulation of the autonomic nervous system. Although up to now no cases of poisoning due to these products have been reported in Italy, Dr. Barsotti made good suggestions for its prevention.

## SWEDEN

**The Influence of Alcohol on Auto Driving.**—Investigations, in 1949, by Sjövall showed that in fatal road accidents, 8.7% of the drivers and 24.1% of the pedestrians and others involved were under the influence of alcohol. The alcoholic pedestrian causes only his own death; the alcoholic driver is responsible for the deaths of others. The Swedish Medical Society has lately investigated the proposal that legislation with regard to driving under the influence of alcohol should be made stricter. It has been suggested that the permissible limit of alcohol concentration in the blood should be shifted from 0.8% to 0.4 or 0.5%. In 1950, Bjerver and Goldberg gave an account of practical road tests conducted with 37 drivers; 17 had drunk alcohol, and 20 served as controls. It was found that an alcohol concentration of 0.35 to 0.40% was high enough to impair driving efficiency.

The latest Swedish investigations on this subject were carried out by Dr. Lars-Erik Gelin and Dr. Gerdt Wretmark who conducted driving tests with 12 drivers, aged 30 to 51 years. All the drivers were accustomed to consuming moderate amounts of alcohol. None of them had any alcohol for 24 hours before the first tests, and none had food for four hours before the tests. After the first tests, without alcohol, these drivers were given quantities of alcohol ranging from 100 to 250 cc. of spirits and containing 31.7 gm. of alcohol per 100 cc. The spirits were diluted, so that each driver drank one-third of a liter without knowing how much alcohol he had taken. Immediately after each test, samples of blood were taken and examined according to Widmark's technique. The interval between the consumption of alcohol and the blood test ranged from 68 to 75 minutes. The drivers were also subjected to the usual clinical tests for drunkenness carried out by the police.

The clinical tests showed that the drivers could be said to be under the influence of alcohol when the alcohol concentration in the blood exceeded 0.70%. Driving was impaired, in some cases, even when the concentration of alcohol was as low as 0.32%. The conclusion is drawn that driving capacity can be greatly impaired with alcohol concentrations under 0.80%. It was also found that constitutional psychic factors may have a great influence on the reactions of certain persons to alcohol.

**Special Hospital Departments for Occupational Diseases.**—The two main hospitals in Stockholm, the Caroline (Karolinska Sjukhuset) and the Southern (Södersjukhuset) have, within the last few years, organized special departments for the treatment of occupational disease. At Caroline Hospital, for example, this innovation dates from 1947, when arrangements were made for the new department to be organized on an independent basis, the state as well as certain other bodies contributing to its finances. Dr. Axel Ahlmark and Dr. Åke Nyström have lately drawn attention to the functions of this new department, whose patients represent a wide range of industrial and occupational diseases. Many of the patients suffer from industrial poisoning from such chemicals as trichloroethylene, for which a special test for reaction in the urine has recently been devised. This test provides a simple and reliable means for determining the degree of risk of exposure to trichloroethylene. The cases of mental poisoning observed in this department have been concerned chiefly with lead and mercury. In 1947, Sjöstrand published an account of his observations of a pulmonary disease that he traced to inhalation of sulfur dioxide and arsenic at a foundry. This condition, about which little had been known, is now being systematically studied in this department. Here, too, a peculiar form of pulmonary emphysema due to inhalation of cadmium is being investigated. Another occupational risk of special interest to this department concerns the lesions and death due to accidental electrocution. With the exception of Norway, Sweden enjoys a more plentiful supply of electricity per person than any other country in the world, and it has to pay for this privilege by a high electrical accident rate. It is calculated that quite a negligible proportion (only about 1.5%) of electrical accidents deserve to rank as genuine mishaps for which no one can be blamed. On the other hand, it has lately been proved that the victim was to be blamed for about 50% of all electrical accidents.

**Red Cross Tuberculosis Work Abroad.**—The Swedish National Red Cross Society has recently issued a report on its tuberculosis work in Germany, Austria, and other countries, since 1948. In June of that year, a Swedish team of BCG workers visited Germany, and in August, Professor Arvid Wallgren began a series of lectures on the subject in different parts of that country. Although the Moro ointment tuberculin test was in common use in Germany, the Mantoux test was not as well known. It was arranged that German doctors and nurses would carry out preliminary Moro tests, which, when negative, were to be followed up by Mantoux tests given by the Swedish team, by November, 1948. This procedure had been followed in 21 cases. In the towns, 1,400 to 1,800 children could be Mantoux tested daily, whereas, in the country districts, this figure was about 1,000. By the end of 1950, a total of 3,669,260 persons had been tuberculin tested and 1,371,017 had been vaccinated with BCG. An average of five months after vaccination, 84.4% of 423,295 vaccinated persons were still Moro-positive. Although it is too early to present statistically convincing claims of the efficacy of BCG vaccination in Germany, figures from Nieder-Sachsen are encouraging. In this area, between May, 1949, and June, 1950, there were 1,100,000 school children between the ages of 6 and 14 years; 400,000 were vaccinated with BCG and 700,000 were not vaccinated. During 1950, there were 136 cases of pulmonary tuberculosis and 74 cases of tuberculous meningitis. The pulmonary tuberculosis rate was 15.6 times higher, and the tuberculous meningitis rate was 14.4 times higher among the nonvaccinated than among the vaccinated group; in the vaccinated group, there were only five cases of pulmonary tuberculosis and three cases of tuberculous meningitis.

When the tuberculosis campaign in Austria was concluded, in 1950, 748,164 children had been tested, and 513,241 had been vaccinated with BCG. The Swedish Red Cross has also sent BCG instructors to Greece, India, Ceylon, Lebanon, Mexico, and Ecuador. Twelve senior doctors, 39 team doctors, 43 nurses, 13 x-ray technicians, and 14 other persons were employed abroad by the Swedish Red Cross, which has also financed study visits to Sweden for 143 foreign doctors, 69 of whom have spent three weeks in visits to Swedish hospitals and laboratories. The other 74 foreign doctors spent less time in Sweden.

# CORRESPONDENCE

## "SOCIALIZED MEDICINE" AND "SOCIAL MEDICINE"

*To the Editor:*—"Social medicine," which is the finest flower of modern medical practice, has been tarred of late with the brush of "socialized medicine" in a confusion of semantic errors, and much harm will be done if we do not lift this term out of the controversial atmosphere in which it now appears. The two should not be used indiscriminately and interchangeably. As matters now stand, some who are trying to save and perpetuate the term "social medicine" consider these terms antithetical, while others consider them synonymous. They are sometimes made to stand in relation to each other like the mountain of Ebal and the mountain of Gerizim. As a matter of fact, they stand for two different concepts, the one referring to its identity with government and the other indicating a wholesome and productive partnership between the two converging disciplines of sociology and medical practice. The two look almost alike in print and have been interpreted in an emotional context that prevents an objective viewpoint.

If you "socialize" the practice of medicine you do not necessarily produce "social medicine." This is doubtless one of the reasons for the antagonism to socialized medicine, but social medicine is not to blame. On the other hand, social medicine, as a concept, is in no way dependent on a governmental policy of nationalization. It deals only with the interaction of social and medical forces in the practice of medicine. Some argue that social medicine is, in effect, socialized medicine, because of its use of certain techniques of organization that characterize both the compulsory and the voluntary principle in medical care, but this takes only one aspect of the matter into account.

Socialized medicine has recently become a provocative and all-inclusive expression, used by its enemies to conjure up the evils that they associate with it and that have nothing to do with those principles of social medicine that are dear to the heart of every modern family physician. In their bitterness, they condemn anything that sounds like socialized medicine. Those who favor the imposition of socialized medicine defend it as a protective device employed by government to make sure that citizens will receive adequate medical care during illness, in somewhat the same manner that they receive preventive care from government during health or threatened illness. On the other hand, those who are opposed consider it and anything resembling it in print as symbolic of all that might be evil in bureaucratic control. The mere mention of any term like socialized medicine in debate saves its opponent the need for being specific about his complaints. He employs it as an offensive term for defensive purposes. We seem to know what he abhors from the manner in which he uses the term. There is a nuance in his facial expression, and perhaps in his gestures, that is unmistakable. He is convinced that nobody in his right mind would want to live, and die, under such a medical arrangement. In this respect the use of the term socialized medicine strongly resembles the use of the term communism (of Latin origin), to which many persons consider it related, or the term bolshevism (of Russian origin) in an earlier period. All three terms are frightening in their power to conjure up a red flag and thereby to scare the listener away. Some persons have literally lost their heads over such semantic unreason, yet it is cropping up again in the form of two terms that get in each other's way and are too often mistaken for each other, though they have come to mean different things.

Socialized medicine, which we should call "state medicine" or "government medicine," is thus made to appear as something that is wicked and so obviously antisocial that nothing further need be said to condemn it. This being the case, why call something "socialized" when you consider it antisocial? On the other hand, social medicine might readily be explained, to anyone who will listen, as a hyphenated phenomenon in which the social and medical aspects of medical practice are viewed stereoscopically. Unlike the spurious term socialized medicine, it came by its name honestly. We could, of course, replace the term social medicine by "environmental medicine" and thus explain its major implications; however, this would limit the practice in our minds and force a retreat in the face of unreason. Since we have been unable to make these terms mutually exclusive, we ought to replace one or the other with a new name.

Leaving words aside and retaining them only as symbols, we can readily see that social medicine is a compound and not a hybrid term. It has no reason to disguise its doings under an assumed name. On the other hand, it would become the practice of medicine better if the term socialized medicine gave way and this concept became known officially as state medicine, which has the advantage of calling this kind of medicine by its proper name. The debate would not then be publicized as socialized medicine versus social medicine, nor would it condemn social medicine in advance as socialized medicine, but as state medicine versus voluntary medicine, with social medicine, the goal of the modern practitioner, as a common denominator for both.

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## PROFESSIONAL JEALOUSY

*To the Editor:*—The letter on professional jealousy written by Drs. Levine, Barbour, and Stephens, and published in the correspondence section of The Journal (**148:**765 [March 1] 1952) raises a question that may well be expanded in various directions.

Professional jealousy between physicians casts no honor on the profession and has long been recognized for what it is by those outside. There are many literary references to this unsavory trait; the thread runs all through the novel "Dr. Thorne," by Anthony Trollope. "And thus Dr. Thorne became settled for life in the little village of Greshamsbury. . . . In doing so, he was of course much reviled. Many people around him declared that he could not truly be a doctor, or, at any rate, a doctor to be so called; and his brethren in the art of living around him, though they knew that his diplomas, degrees, and certificates, were all en règle, rather countenanced the report. There was much about this new comer which did not endear him to his own profession. In the first place, he was a new comer, and, as such, was of course to be regarded by other doctors as being de trop. . . . Dr. Thorne and Dr. Fillgrave were doubtless well-known enemies. All the world of Barchester, and all that portion of the world of London which is concerned with the 'Lancet' and the 'Scalping-knife' were well aware of this: they were continually writing against each other; continually speaking against each other; . . ."

The fact that professional jealousy has existed so long does not mean that it can be allowed to continue unchecked. It is more than a degrading compound of fear and greed with jealousy, for it may have effects of a disastrous kind on the profession as a whole. An incident that was recently brought to my attention is illustrative. A group of laymen were discussing the action of the only physician in their community who succeeded in preventing a young physician from settling in that area, even though this additional doctor was needed. The reaction to this event was that maybe something was seriously wrong with medicine after all and that socialized medicine would be the answer to such behavior. Unfortunately, such episodes are by no means uncommon and may turn the thinking of entire communities into channels that would be catastrophic for individuals as well as for the profession at large.

The question raised by the Centralia, Ill., physicians should be pursued, since there are many reasons for believing that professional jealousy and its corollary evils can exert a most undesirable effect on the entire medical profession.

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# BUREAU OF LEGAL MEDICINE AND LEGISLATION

## MEDICOLEGAL ABSTRACTS

**Blood Transfusion: Death from Hepatitis Following Use of Pooled Blood Plasma.**—The plaintiff sued the state of New York for damages for the death of Ernest Parker allegedly due to the state's negligence in distributing pooled blood plasma infected with homologous serum jaundice. The suit was heard by the court of claims of New York.

Ernest Parker was admitted to the Northern Westchester Hospital at 2:45 on the morning of Nov. 21, 1948, having been picked up by a passerby on the roadside unconscious and in an apparently critical condition. The resident physician prescribed shock therapy and a transfusion of pooled blood plasma was administered. Parker recovered and left the hospital within a week, returning to his employment after a further period of convalescence at his home. On Feb. 11, 1949, he was readmitted to the hospital suffering from homologous serum jaundice or hepatitis and died on Feb. 12, 1949. It is established by a preponderance of the proof that Parker's death resulted from the fact that the plasma used in the transfusion had been infected with the jaundice virus. The plasma was war surplus blood plasma which had been originally procured for the Army and Navy by the American Red Cross and, having been declared surplus by the War Department upon the cessation of hostilities, was distributed to health agencies in the 48 states for allocation to hospitals and licensed physicians. The particular plasma administered to Parker had been shipped from the Red Cross to the Westchester County Red Cross Chapter, which stored the material and delivered it untouched and in its original package to the hospital in response to its request, communicated to the Westchester county health commissioner, who had been designated by the state commissioner of health as district laboratory supply station custodian.

Essentially, said the court, it is claimed that the state having knowledge of the incidence of homologous serum jaundice due to the use of pooled plasma, was guilty of negligence in the distribution of the Red Cross blood plasma, and that it was at fault in failing to warn physicians of this danger.

Use of blood as a therapeutic agent is a comparatively recent development, said the court. Representing in its early stages "the final desperate gesture of the helpless physician toward a moribund patient," the experience and knowledge acquired in the treatment of the casualties of two major wars rendered the administration of blood or blood derivatives a recognized therapeutic device used in the presence of established clinical indications. Transfusion therapy involves the use of whole blood, plasma which is the fraction of blood remaining after the red cells have been removed, or serum albumin, another blood derivative. The use of plasma as a substitute of whole blood was developed as the result of a medical research program instituted in 1939 and 1940 at the request of the Surgeons General of the Army and Navy, designed to meet the need for a blood product which could be stored and stockpiled, was readily transportable and could be administered without regard to the donors' blood group or without incurring the danger of reaction due to incompatibility of blood.

Widely used during the second World War because of its availability and convenience in administration, plasma saved thousands of lives but also brought with it the problem of transmission of disease from an infected blood donor. It was early ascertained that homologous serum jaundice constituted one of the principal dangers. While both blood and plasma are potential vectors of disease, the problem was particularly acute in the case of pooled dried plasma, since its manufacture involved the pooling of the blood of 10 to 50 donors, any one of whom might infect the entire lot. In the Army, homologous serum jaundice was second only to venereal disease in hospital bed-days involved.

When the Red Cross plasma distribution program was initiated early in 1946, the Red Cross, through its committee on blood and blood derivatives, directed the attention of the various state health departments to the possibility of virus transmission, particularly emphasizing the danger of serum jaundice. It was suggested that studies be instituted to determine as accurately as possible the incidence of this disease. In October, 1946, the New York Sanitary Code was amended to require physicians to report cases of serum jaundice to the public health authorities. Department of Health Form CD 103, kept in the offices of all physicians for the reporting of all communicable diseases as required by law, listed serum jaundice as a reportable disease and included the question, "if jaundice, did patient receive transfusion of blood, plasma or other blood product during the six months period prior to onset"? The state of New York also conducted the outstanding study in the country in this connection and, on the conclusion of its investigations, widely publicized its findings which disclosed an incidence of serum jaundice of 4.8%. Based on this report and the data obtained from other studies, the Red Cross committee on blood and blood derivatives again considered the advisability of continuing the distribution of plasma at a meeting held in the spring of 1947 and at later meetings, and announced its conclusion to continue plasma distribution in a report forwarded on Aug. 15, 1947, to the various state agencies, pointing out that, in view of the lack of availability of whole blood or other relatively safe blood derivatives in many parts of the country, plasma would save many more lives than would be lost from the occasional incidence of serum hepatitis resulting from its use.

The medical evidence establishes that the use of plasma is indicated, with rare exceptions, only where other safer blood or blood products are not "available." But availability does not consist merely in having blood or blood products in the blood bank. In the apt phrase of a medical witness, "You do not just grab a bottle of blood and give it." Whole blood requires cross matching and typing in order to determine the compatibility of the donor's blood with that of the patient. The bloods must be mixed together in a test tube or on a slide and evidence of compatibility obtained. If incompatible blood is administered, there is a 50-50 chance of death resulting from kidney shut-down. While Witebsky's solution, when combined with universal "O" blood, markedly lessens the danger of incompatibility, other risks are not affected. It is obviously a matter of medical judgment to determine in a particular case whether to administer plasma immediately, despite the danger of serum jaundice, or to risk the delay involved in cross-matching whole blood or to administer Witebsky's solution and whole blood. The vital importance of the time element lies in the fact that shock induces the failure of circulation and an inadequate supply of blood to the brain, heart and other vital organs so that if circulation is not promptly reestablished, the patient dies. The attending physician must therefore balance the risk incident to the immediate use of plasma against the possibility of death due to shock while awaiting the availability of safer whole blood properly selected or "O" blood with Witebsky's solution.

Clearly, the state was not at fault because the physician in the Parker case decided, in his judgment, to administer plasma. Claimant urges that the plasma should not have been distributed at all, or if distributed, should have been recalled. But the evidence is clear that there are emergency situations in which plasma may save lives. The danger of serum jaundice known to the state, was well known to the medical profession. Physicians are required by law to report serum jaundice as a communicable disease. The legislature, therefore, obviously assumed that the disease was known to the profession and the reference in the report form to a recent plasma transfusion is further evidence of the state of medical knowledge on this subject. Considerable discussion of the subject had appeared in health publications and in established medical journals. Also, on seven distinct occasions, specific warning of the incidence of serum jaundice was sent to the Northern Westchester Hospital.

It is urged that the Red Cross plasma should have been irradiated and that, if the plasma had been so processed, the incidence of disease would have been materially reduced. But it was not until April, 1949, after some prior experimentation, that the use of irradiated plasma was generally accepted by the medical profession.

It is also urged that the state was remiss in failing to affix a warning label to the plasma carton. There is no warrant for the assumption that the state had an obligation to instruct licensed physicians in the proper application of therapeutic agents in common use. This was no new preparation, produced and distributed by the state, such as might be required to advise physicians of its proper uses. The distribution of dried pooled plasma had been recommended and endorsed by leading physicians and medical bodies. In this case the product distributed was designed for use by physicians. There is a manifest distinction between selling a medical preparation to the public, who may have no knowledge of the dangers attendant upon its use, and making available a preparation to a hospital at its request, whose physicians may be expected to have knowledge of the dangers involved in utilizing the therapeutic preparation ordered by them. Ordinarily, there is no duty to give warning to the members of a profession against generally known risks. In this case the state of New York, even if it had manufactured and distributed the product, had every reason to believe that the risks attendant upon the use of plasma were well known to the medical profession, hospitals and licensed physicians. Since the state here acted as a mere distributor, there is less reason to fasten a liability upon it, in the absence of any negligence on its part.

Accordingly, the plaintiff's claim for damages against the state for the use of the pooled blood plasma was denied.—*Parker v. State, 105 N. Y. S. (2d) 735 (New York 1951).*

# MEDICAL MOTION PICTURES

**Autopsy Technique:** 16 mm., color, sound, showing time 58 minutes. Sponsored by the Department of Pathology, State University of Iowa, College of Medicine. Produced in 1951 by and procurable on rental or purchase from Bureau of Audio-Visual Instruction, State University of Iowa, Iowa City.

This film presents one of the techniques used in postmortem examination. It is presented in great length and with attention to every detail. From that standpoint it will be valuable to residents in pathology and can be used as a good introduction to autopsy work. Its main defect is that it presents a one-sided point of view. There will be many who will not agree with some of the procedures used; for example, the technique of removal of intestines, separate removal of kidneys and of bladder, and the method of removal of the dura mater. Some will not approve of the obtaining of potentially infected material by aspirating the glass pipet by mouth. The body when placed on the table is shown to have no bandage applied to the jaw. This may cause disfigurement rightly objectionable to embalmers. A rather extensive decubitus is completely disregarded in the general description of the body. It probably would be better to have more collaboration on a film of this kind to make it less one-sided. The shortcomings mentioned do not detract from the fact that this is the best and the most thorough film extant on the subject of autopsy technique. The photography is excellent, and the narration is well done.

**Gram's Stain: A Demonstration of the Technic:** 16 mm., color, sound, showing time 11 minutes. Presented by Committee on Materials for Visual Instruction in Microbiology of the Society of American Bacteriologists. Produced in 1950 and procurable on rental or purchase from Sturgis-Grant Productions, 314 East 46th Street, New York 17.

The film presents Hucker's modification of Gram's technique with all the details, leaving nothing to the imagination. It begins with cleaning of the slide, continues with preparation of the smear, and then proceeds step by step. Many instructive close-up views are shown. The only defect noted was that in a few shots a black background prevents seeing the smear, and for the same reason the microscope used is not clearly visible. Otherwise, the film is excellent technically and didactically. The material presented has been well selected. It can be demonstrated as the best available teaching medium of the subject, which though small in scope is probably the most widely used bacteriological diagnostic technique. Failure to master the technique may be the cause of serious errors. That in itself justifies emphasis on proper indoctrination in its use. The film can be recommended very warmly for students of bacteriology and of medical technology and for laboratory workers in general. The photography and narration are well done.

# COUNCIL ON INDUSTRIAL HEALTH

## MEETING OF COUNCIL ON INDUSTRIAL HEALTH

The 28th meeting of the Council on Industrial Health took place at the Hotel William Penn in Pittsburgh on Jan. 17, 1952. New members attending were Melvin N. Newquist and James H. Sterner, replacing William A. Sawyer and Harold A. Vonachen respectively. A. J. Lanza and Robert A. Kehoe were reelected chairman and vice chairman.

The Committee on Industrial Health Defense reported an extension of its sphere of activity through an inquiry into health and medical service needs that may be anticipated in defense production areas during our present national emergency. Information is now being received from state medical societies, divisions of industrial hygiene, state health departments, and various agencies in Washington regarding critical defense industry areas. The federal Department of Labor has submitted data concerning labor shortages, the Division of Occupational Health in the U. S. Public Health Service about anticipated health problems in critical areas, and the Federal Security Agency relative to housing shortages. As this information is collected, it will be referred back to the state medical societies and health departments to determine whether the data are in agreement with local estimates of critical conditions. Through the Bureau of Medical Economic Research, assistance will be obtained regarding the availability of physicians in relation to medical service areas throughout the country. Data concerning nurse distribution will be used in accordance with statistics received from the Division of Nursing Resources of the Public Health Service and from a considerable number of state nursing organizations that have recently completed nurse surveys. All data will be assembled for state medical societies to assist them in anticipating or evaluating critical area problems.

As a result of a meeting with the Joint Committee on Occupational Dermatoses, it was decided that that Committee should be discharged, and that the Council should select its own consultants from lists of names presented to it from the three principal dermatological associations: the Section on Dermatology and Syphilology of the American Medical Association, the American Academy of Dermatology, and the American Dermatological Association.

It was announced that J. J. Callahan of Chicago and James Hill of Lansing, Mich., have replaced Harry V. Spaulding of New York City and W. H. Nickels of Virginia as consultants to the Committee on Workmen's Compensation. This Committee has prepared and forwarded to each state medical society a questionnaire intended to gather basic information regarding medical relations in workmen's compensation practice.

The Committee on Environmental Health, Hygiene and Safety was authorized to undertake a critical evaluation of the literature dealing with the health or medical aspects of atmospheric pollution. A program of education in industrial health methods designed for physicians in general practice has been prepared and submitted to the American Academy of General Practice at their request. The American Academy of Occupational Medicine has offered to participate in the program, through enlistment of qualified teachers in various aspects of the subject.

It was voted to organize a working committee to formulate standards for small plant industrial medical services, and it was decided that the Industrial Medical Association be invited to participate in all appropriate ways.

The staff of the Council was requested to develop means for implementing a recent resolution of the House of Delegates asking that the Council on Industrial Health extend its interest and activities into an investigation of health problems of the older workers. In response to a suggestion from the Edison Electric Institute, the Council considered favorably the development of a committee representing utility companies, manufacturers of household appliances, and medicine to formulate research problems and to determine the best ways of channeling information to the medical profession at large regarding means for lightening household tasks for the disabled housewife. The session was adjourned to meet jointly with representatives from the state medical society industrial health committees.

# MEDICAL LITERATURE ABSTRACTS

## UNITED STATES

### American Journal of Ophthalmology, Chicago

34:1649-1790 (Dec.) 1951

*Retrolental Fibroplasia: Etiology and Prophylaxis. Preliminary Report. T. S. Szewczyk.—p. 1649.
Corisone Therapy in Anterior-Segment Inflamation. W. B. Potter. —p. 1650.
Use of Cortisone in Ocular Conditions. H. Agatston.—p. 1655.
ACTH, Intermedin and Cortisone in Treatment of Retinitis Pigmentosa. E. H. Steffensen and J. Kukora.—p. 1665.
Use of ACTH and Cortisone in Ophthalmology. D. M. Gordon, J. M. McLean, H. Koteen and others.—p. 1675.
Effect of Cortisone on Experimentally Induced Herpetic Keratitis of Rabbit. H. L. Ormsby, G. Dempster and C. E. van Rooyen.—p. 1687.
New Technique in Treatment of Hyphema: Preliminary Report. S. L. Jukovsky.—p. 1692.
Total Penetrating Keratoplasty: Preliminary Report. R. Castroviejo. —p. 1697.
Clinical Ophthalmic Experience with Bacitracin. H. Eggers.—p. 1706.
Cytology of Trachoma. F. N. Sezer.—p. 1709.
Effect of Maternal Smallpox Vaccination During Pregnancy on Eyes of Infants. S. S. Snyder.—p. 1713.
Serum Lipids in Case of Diabetic Lipemia Retinalis. P. R. Manning, S. G. White and H. O. Carne.—p. 1715.
Illustrations for Ophthalmic Articles and Lectures. V. A. Byrnes.—p. 1719.
Inflammability of Plastic Eyeglass Frames. P. Van Portfliet and F. B. Fralick.—p. 1727.
Cylinder Rotation Test. E. W. Fantl.—p. 1730.
Age Changes in Wistar Albino Rat Eye. I. H. Leopold and L. Calkins. —p. 1735.
Role of Hyperpyrexia in Management of Ocular Inflammatory Disease. B. Y. Alvis.—p. 1741.

**Retrolental Fibroplasia: Etiology and Prophylaxis.**—It was observed that when the duration of care in oxygen incubators was shortened because of the increased number of admissions, the incidence of retrolental fibroplasia rose alarmingly. The eyegrounds of premature infants were examined frequently, and it was discovered that none showed evidence of vascular dilatation, tortuosity, or edema as long as they were kept in oxygen incubators. Those who developed the disease showed the first signs of it shortly after being placed in a basinette. Nine patients with early retrolental fibroplasia, manifested by vascular engorgement, tortuosity of vessels, hemorrhages, and early retinal detachments, were placed in an atmosphere with a concentration of 60% to 70% oxygen, and there was a dramatic improvement in a relatively short time. The disease was induced rapidly in seven premature infants simply by removing them from oxygen incubators and placing them in basinettes (the oxygen concentration in the nursery is 22% and in incubators is more than 50%). Dramatic improvement followed within 24 hours after the premature infants were returned to an atmosphere of 60% concentration of oxygen. The author believes that when the oxygen tension in the blood falls below the requirements of the fetal retina, the retinal vessels dilate, then become tortuous and, if the demands for oxygen are still not satisfied, edema in the most primitive parts of the retina develop (peripheral gray-white areas). Transudation and hemorrhages take place and vitreous opacities appear. The progressive retinal edema and transudation from the vessels cause gradual separation of the retina, and atrophy and fibrosis set in. The adverse effects of subclinical anoxia are probably not limited to the eye, but may be a factor in cerebral palsy, certain cases of epilepsy, mental retardation, and certain metabolic and nervous disturbances.

### American Journal of Physiology, Baltimore

167:559-854 (Dec.) 1951. Partial Index

Effect of Hypophysectomy on Ammonia Response in Acidosis. A. F Hartmann Jr., F. D. Harris, H. F. Martin and others.—p. 563.
Regulation of Secretion of Adrenotropic and Thyrotropic Hormones After Stalk Section. R. J. Barnett and R. O. Greep.—p. 569.
Iodide Metabolism During Anoxia, Nephrectomy, Trauma, Avitaminoses and Starvation in Rat. L. Van Middlesworth and M. M. Berry.—p. 576.
Effect of Partial Hepatectomy on Liver Catalase Activity in Normal and Protein-Depleted Rats. A. M. Stein, E. R. Skavinski, D. Appleman and P. M. Shugarman.—p. 581.
Effect of Acid Secretion of Topical Application of Acetylcholine to Mucosa of Fundic Portion of Stomach. E. Kammerling, G. Slezak and M. I. Grossman.—p. 621.
Relationship of Radiation Dose to Lethality Among Exercised Animals Exposed to Roentgen Rays. D. J. Kimeldorf and D. C. Jones.—p. 626.
Total $CO_2$, Plasma pH and $pCO_2$ of Hamsters and Ground Squirrels During Hibernation. C. P. Lyman and A. B. Hastings.—p. 633.
Acclimatization to Cold: Natural and Artificial. E. A. Sellers, S. Reichman and N. Thomas.—p. 644.
Effect of Neurotomy on Hexokinase and Phosphorylase Activities of Rat Muscle. F. L. Humoller, D. Hatch and A. R. McIntyre.—p. 656.
Relation of Arterial Pulse Pressure to Renal Function. A. V. N. Goodyer and W. W. L. Glenn.—p. 689.
Genesis of Electrocardiographic Pattern of Digitalis. H. Levine, L. H. Nahum, H. M. Geller and R. S. Sikand.—p. 726.
Reactions of Isolated Pulmonary Blood Vessels to Anoxia, Epinephrine, Acetylcholine and Histamine. D. J. Smith and J. W. Coxe.—p. 732.
Influence of Diaphragm upon Portal Blood Flow and Venous Return. R. S. Alexander.—p. 738.
Effects of Lung Inflation and Epinephrine on Pulmonary Vascular Resistance. W. S. Edwards.—p. 756.

### Medicine, Baltimore

30:283-444 (Dec.) 1951

Erythema Nodosum in Children: Review. S. A. Doxiadis.—p. 283.
*Relapsing Iritis with Recurrent Ulcers of Mouth and Genitalia (Behçet's Syndrome). Review: With Report of Additional Case. R. France, R. N. Buchanan, M. W. Wilson and M. B. Sheldon Jr.—p. 335.
Sickle Cell Anemia: Composite Study and Survey. M. P. Margolies. —p. 357.

**Recurrent Iritis with Ulcers of Mouth and Genitalia (Behçet's Syndrome).**—The triad of recurrent iritis with ulcers of the mouth and genitalia was first described in 1908. In 1937 Behçet of Istanbul published the first of a series of papers in which he advocated that the triad be considered a disease entity. Since then his name has been associated with the condition. This report analyzes 33 cases, 32 of which were collected from the literature. The new case was that of a World War II veteran who had the disease for six and a half years. There were several recurrences of both iritis and scrotal and oral ulcerations; then arthralgia occurred and was followed by a painful effusion into the right knee joint. Vision dwindled and total blindness resulted. Increasing severity of bitemporal and retro-orbital headaches led to enucleation of the eyes, after which there was a considerable reduction in the severity of the headaches. The patient was treated with salicylates, sulfonamide, penicillin, streptomycin, aureomycin, chloramphenicol, hyperthermia, blood transfusions, cobra venom, antihistaminic drugs, desoxycorticosterone-acetate, deep and superficial x-ray therapy, nicotinic acid, and vitamin preparations. Terramycin was given briefly but was discontinued because it produced nausea and vomiting. None of these treatments produced substantial improvement. On the possibility that the disease might be allied to the rheumatic state, treatment with cortisone and corticotropin was tried, but the results were disappointing. A review of the 32 cases described in the literature indicates that the disease has a predilection for young men on the eastern shores of the Mediterranean. It is a chronic illness of unknown origin affecting primarily the uveal tract, buccal mucosa, and genitalia. Other parts of the body such as the skin, the central nervous system, and the joints were frequently involved. Abortive forms without the complete picture of eye, mouth, and genital lesions undoubtedly occur. Irreversible ocular changes resulted in the majority of patients. Death occurred in a few cases through involvement of the vital centers of the brain. Biopsy studies raised the question of an inflammatory reaction involving the small blood vessels, particularly the veins.

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Titles marked with an asterisk (*) are abstracted.

## FOREIGN

### Acta Chirurgica Belgica, Brussels

50:493-604 (Nov.) 1951. **Partial Index**

Esophagectomy Followed by Tubular Resection of Stomach to Restore Continuity by Gastroesophageal Anastomosis. I. Boerema.—p. 496.
Diaphragmatic Hernias. J. Boonants.—p. 504.
*Roentgenography of Portal Vein (Portography) by Injection of Contrast Medium into the Spleen; Preliminary Report. R. Boulvin, M. Chevalier, P. Gallus and M. Nagel.—p. 524.

**Portal Vein Roentgenography by Splenic Route.**—Animal experiments by the Italian investigators Abeatici and Campi revealed that the portal venous system could be visualized by injecting the contrast medium into the parenchyma of the spleen. The present paper is a preliminary report on the use of this method in a woman, aged 63, with a clinical diagnosis of portal hypertension due to cirrhosis of the liver, and in a woman, aged 67, with the clinical diagnosis of cirrhosis of the liver associated with ascites and with a suspected gastric neoplasm. Under fluoroscopic control 1 to 2 cc. of a tepid 70% iodopyracet solution ("umbradil") were injected at the level of the 10th left intercostal space and at the anterior axillary line with a fairly long, short-beveled needle without an obturator. Immediately an opaque spot appeared on the screen that always remained in close contact with the point of the needle. Thus, it being certain that the needle had entered the parenchyma of the spleen, 15 to 25 cc. of the contrast medium were injected within two to three seconds under continued fluoroscopic control. The first picture was taken as soon as the splenic vein began to be delineated, followed by four to five serial pictures at one second intervals. In general the second picture showed most clearly the splenic vein, the trunk of the portal vein, its two bifurcating branches, the intrahepatic ramifications, and occasionally even the collaterals of the splenic vein. The superior and inferior mesenteric veins never appeared on the plate. Delayed visualization of the splenic vein occurred in the second patient, indicating an intrasplenic obstruction. Injection of 1 cc. of a 1:1,000 solution of epinephrine caused contraction of the spleen and thus facilitated the visualization of the portal venous system. This new technique, used preoperatively, may provide information as to the best route of approach and as to whether portacaval or splenorenal anastomosis can be established.

### British Journal of Ophthalmology, London

35:751-818 (Dec.) 1951

Fundus Dystrophy with Unusual Features: Histological Study. N. Ashton and A. Sorsby.—p. 751.
Standardization of Reading Types. F. W. Law.—p. 765.
Surgery of Malignant Melanoma of Iris. H. B. Stallard.—p. 774.
Biochemical and Histological Changes in Developing Rabbit Eyes. B. A. Bembridge and A. Pirie.—p. 784.
Cortisone in Perforating Eye Wound. H. O. Little.—p. 790.
Swelling of Cornea in Vivo After Destruction of Its Limiting Layers. D. M. Maurice and A. A. Giardini.—p. 791.

### Deutsche medizinische Wochenschrift, Stuttgart

76:1613-1644 (Dec. 21) 1951. **Partial Index**

Some Observations on Hyperinsulinism. W. Becker and H. Nusselt.—p. 1613.
Deficient Blood Perfusion of Mycardium in Lesion of the Brain-Stem. A. Weber.—p. 1616.
Neuropsychiatric Syndromes in Besnier-Boeck-Schaumann Disease. W. Zeman.—p. 1621.
Ligation of Inferior Vena Cava in Treatment of Cardiac Decompensation. T. Hoffmann.—p. 1624.
*Therapy of Paget's Disease. W. Beiglböck and R. Clotten.—p. 1630.

**Treatment of Paget's Disease.**—There is still no agreement on the nature and pathogenesis of Paget's osteitis fibrosa, but considerable attention has been given to the possible role of endocrine factors and various hormones have been used in treatment, including sex hormones, adrenal hormones and corticotropin (ACTH). Beiglböck and Clotton present observations on two patients in whom they resorted to the implantation of pituitary glands. The patients improved, and there were changes in the blood chemistry, particularly in the phosphatase. The authors suggest that perhaps in some cases Paget's disease will respond to hormones of the opposite sex and in some to corticotropin.

### Semaine des Hôpitaux de Paris

28:1-38 (Jan. 2) 1952

*Problem of Abandoning Strict Diet for Young Children with Diabetes Mellitus; Concept of "Free Diet" and Its Application to Children. P. Uhry, P. Ducas and E. Eliachar.—p. 1.
*Criticism of "Free Diet" in Diabetic Infants. P. Uhry and P. Ducas.—p. 4.
Buccodental Lesions of Young Diabetic Patients. P. Uhry, A. Chaput, P. Ducas and E. Eliachar.—p. 11.

**"Free Diet" for Diabetic Children.**—In reviewing the papers of Scandinavian and English workers, the French authors state that diet free of restrictions has been advocated in the treatment of diabetes mellitus in young children. Those in favor of the "free diet" assert that carbohydrates would be utilized maximally, even if the required amount of insulin should be increased. Free diet in the sense of a diet with avoidance of overfeeding as the only restriction should prevent repetition of hypoglycemic effects and bouts of ketosis. Statistics show that the mortality rate and the incidence of acute and chronic infections have not been higher among the diabetic patients placed on "free diet" than among those on restricted diet. Furthermore, the diabetic child unsubjected to a strictly regulated diet lives in an atmosphere of less mental strain.

**Criticism of "Free Diet" in Diabetic Children.**—In their critical study of the role of "free diet" in management of diabetes mellitus in children, the French authors report personal experiences with staphylococcal and nasopharyngeal infections that occurred particularly in children with considerably increased hyperglycemia or abnormal glycosuria. Acute attacks of tuberculosis in children with a previous positive reaction to the cutaneous test with tuberculin occurred nearly always when their diet was less strictly regulated. The tendency to ulcerative lesions was pronounced in the patients whose diet had been made less rigorous. Excessive concentration of sugar in the blood required the use of much larger doses of insulin (140 to 180 units) than those reported by the Scandinavian workers who favour the "free diet." This increased insulin treatment is not without risk, because of its possible adverse effects on the function of the pituitary and the adrenals, which in turn might be responsible for the increased incidence of vascular disturbances. The authors stress particularly the high incidence of degenerative changes observed in patients who had been placed on a "free diet." While unconsciously the patients continued to eat moderate amounts of carbohydrates, their food contained large quantities of cheese, butter, cream, and oil. A high fat diet does not only entail attacks of ketosis, but is also responsible for enlargement of the liver and vascular disturbances. A certain flexibility in the diet may be permitted, but restriction is necessary in order to obtain a reduction in glycosuria and hyperglycemia and to prevent the development of arteriosclerotic lesions and disturbances of fat metabolism, which are the major complications in patients with long-standing diabetes mellitus on an unbalanced regimen.

### Ugeskrift for Laeger, Copenhagen

113:1615-1652 (Nov. 29) 1951. **Partial Index**

*Clinical Experiences with Methylergobasine (Methergen) in Delivery. P. Schou.—p. 1618.
"Humanized" Dried Milk ("Mamysan") in Artificial Feeding of Infants. P. W. Braestrup.—p. 1622.
Value of Examination of Fasting Secretion in Gastric Diagnosis: Result of 400 Determinations in Ambulant Material. L. C. Grandjean.—p. 1630.

**Clinical Experiences with Methylergonovine Tartrate in Delivery.**—In 200 cases Schou gave 0.2 mg. methylergonovine tartrate ("methergin") intravenously simultaneously with delivery of the anterior shoulder in head presentation or immediately after delivery of the head in breech presentation. In 215 control cases the classic principles of delivery were followed. The two groups were otherwise comparable. In the patients given methylergonovine tartrate the placental stage had an average duration of 6.3 minutes as against an average of 10.6 minutes in the control cases, and hemorrhages in relation to delivery were reduced to an average of 148 ml. as against an average of 275 ml. in the control cases.

# BOOK REVIEWS

**Adrenal Cortex: Transactions of the Second Conference, November 16-17, 1950, New York, N. Y.** Edited by Elaine P. Ralli. Cloth. $3. Pp. 209, with 68 illustrations. Josiah Macy, Jr., Foundation, 565 Park Ave., New York 21, 1951.

This volume is a stimulating summary of some of the more recent research on the adrenal cortex and the corticotropic hormone. Following the general pattern of the Macy Foundation reports, it consists of discussion of selected topics in the field under study by the participating members of the conference, all of whom are well qualified for this task. The discussion on the chemistry of corticotropin (ACTH), led by Dr. Li, leaves unanswered the question as to whether the active principle is vested in a protein or a peptide. Dr. Sayers introduces the subject of the regulation of the pituitary adrenocorticotropic activity, considering in turn the possible roles of the cortical hormone, epinephrine, and the hypothalamus. In the discussion on clinical studies, led by Dr. George Thorn, special emphasis is placed on the use of cortisone in patients with adrenal insufficiency. Other subjects discussed are the inhibitory effect of adrenal cortical hormones on manifestations of allergic phenomena and the effect of the adrenal cortex on the spreading reaction; these topics were discussed by Drs. Dougherty and Opsahl respectively.

**Die organischen und funktionellen Nervenkrankheiten im Kindesalter: Vademecum für Praxis und Sprechstunde.** Von Dr. med. Hans Schlack. Cloth. 15 marks. Pp. 190, with 33 illustrations. Hippokrates-Verlag Marquardt & Cie, Mörikestr. 17, (14a) Stuttgart-S, 1951.

This monograph has been prepared for pediatricians and others who are confronted with the neurological problems of children. The common functional and organic neurological diseases are briefly discussed. The neurological complications of mumps receive slightly more than three lines and are dealt with inadequately. Brain abscess is disposed of in about one-third of a page, and the discussion of intracranial tumor occupies little more than two pages. Tumors of the spinal cord are not mentioned. Tetanus is mentioned only as a disease of the newborn, and there is no discussion of immunization against this disease. This is by no means a reference work; neither is it one that will be found useful to the specialist in neurology or to the student of diseases of the nervous system. It will, however, prove a readily accessible source of information that will be useful in the pediatrician's office. There is an adequate index but no bibliography. The few illustrations found at the end of the book are good.

**Clinical Methods: A Guide to the Practical Study of Medicine.** By Sir Robert Hutchinson, Bart., M.D., LL.D., F.R.C.P., Consulting Physician to London Hospital and to Hospital for Sick Children, Great Ormond Street, London, and Donald Hunter, M.D., F.R.C.P., Physician to London Hospital. Revised with assistance of R. R. Bomford, D.M., F.R.C.P., Physician to London Hospital. Twelfth edition, third printing. Cloth. $5. Pp. 484, with 128 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1951.

This book deals with diagnostic methods that may be applied at the bedside and concerns the history of the patient, physical examination, examination of blood, urine, and pathological fluids, bacteriological investigations, and examination of children. The present edition has been extensively rewritten. New sections have been added on liver function tests, fat in the feces, radiography of the intestinal tract, and radiography of the chest. The book, owing to its small size, is intended as a handbook rather than a complete treatise on diagnosis. It is well written and authoritative, but the use of British terminology and the stress placed on British laboratory methods, which do not always correspond to those in popular use in the United States, limit its value for American readers.

**Gynecologic Nursing.** By Robert James Crossen, A.B., M.D., F.A.C.S., Assistant Professor of Clinical Gynecology and Obstetrics, Washington University School of Medicine, St. Louis, and Ann Jones Campbell, R.N., B.S., Superintendent of Nurses, Barnes Hospital, McMillan Hospital, St. Louis Maternity Hospital, and Washington University Clinics, St. Louis. Fourth edition. Cloth. $3.50. Pp. 256, with 167 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1951.

In this edition, Crossen has a new co-author. The chief change made was a rearrangement, so that nursing procedures are discussed in the chapters in which material is discussed to which they apply. Hence, disease, treatment, and nursing care are discussed in the same chapter. This edition also includes the following additions: information on the use of vaginal smears as an adjunct in the diagnosis of early, unsuspected cancer and as an aid in diagnosis of certain endocrine disturbances, the use of the culdoscope and the peritoneoscope, cul-de-sac puncture, antibiotics, and the up-to-date use of endocrines in such functional disturbances as sterility, dysmenorrhea, and uterine bleeding.

The book is well written and abundantly illustrated. Many of the illustrations have been taken from Crossen's other books. This book devotes much discussion to gynecology, perhaps a little too much for nurses. On the other hand, much more than three-fourths of a page should have been allotted to subjects such as women in industry and the psychosomatic aspect of nursing. Gynecologic problems in industry now play a major role in the employment of women and the importance of psychosomatics is today recognized in every branch of medicine. An understanding nurse is of tremendous benefit in the care of gynecologic patients, as she is in treating patients with other diseases. The book is well printed on sturdy paper, and the illustrations are clear. In spite of minor criticisms, this book will undoubtedly continue to be popular among nurses.

**Eternal Eve: The History of Gynaecology & Obstetrics.** By Harvey Graham. Cloth. $10. Pp. 699, with illustrations. Doubleday & Company, Inc., Garden City, New York, 1951.

This book is an interesting history of obstetrics and gynecology. Drawing on a vast stock of knowledge and reading, the author portrays the pageant of childbirth over the centuries as the colorful and exciting spectacle that it has actually been. The immortals of obstetrics and gynecology, from Soranus to Simpson, and their contributions are discussed in detail, and with much documentation from original sources. Also included are the sordid annals of the charlatans and "Sarah Gamps," together with their contributions of secrecy, superstition, hoax, and fanaticism. For instance, an account is presented of the "quack of quacks," Cagliostro, who, for a substantial consideration, could raise the dead, restore lost youth, make the barren pregnant, or provide a delivery bed that was guaranteed to eliminate the pains of labor. The history of the Chamberlen family and their "hands of iron" is reviewed at full length. Both physicians and laymen will find entertaining reading as well as serious history and biography throughout this large volume. The 20 illustrations, which the author has collected from various sources of forgotten lore, greatly add to the interest of the text.

**Disease in Infancy and Childhood.** By Richard W. B. Ellis, O.B.E., M.A., M.D., Professor of Child Life and Health, University of Edinburgh, Edinburgh. Cloth. $8. Pp. 695, with 300 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1951.

The book is written in a readable style and includes many pertinent illustrations. It is not lengthy and does not cover, in detail, the entire field of pediatrics. Many subjects are categorically referred to but not discussed. The general composition of the book suggests its use as a pediatric text. The subject matter emphasized in the book varies from that emphasized in standard American pediatric texts. This difference is shown in the relatively large number of pages devoted to a discussion of tuberculosis and congenital anomalies. This probably reflects the incidence of these problems in the author's experience.

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The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

# QUERIES AND MINOR NOTES

## WHO OWNS THE ROENTGENOGRAMS?

To the Editor:—*Who owns roentgenograms taken in a physician's private office during the study of a patient's illness? Can you refer me to any legal decision in this matter?*

*Milton M. Mazursky, M.D., Roselle, N. J.*

Answer.—The courts have either held or recognized that roentgenograms belong to the physician who takes them, not to the patient (*McGarry vs. J. A. Mercier Company*, 262 N. W. 296; *Whipple vs. Grandchamp*, 158 N. E. 270). This question has been presented on a number of occasions to the Bureau of Legal Medicine and Legislation of the A. M. A., and, to facilitate responses to such inquiries, the Bureau has prepared a statement that can be obtained on request.

## HOT AIR HEATING AND ASTHMA

To the Editor:—*Is there any basis to the claim that a hot water heating system is superior to forced hot air heating, insofar as the well-being of asthmatics is concerned? Asthmatic attacks in this instance are definitely connected with occurrence of acute upper respiratory infections.* *M.D., Vermont.*

Answer.—The only disadvantage of the hot air system is that dust particles might be circulated more by the draft of air. On the other hand, with the hot air heat it is possible to increase humidity in the house, a desirable feature for the homes of asthmatic persons in winter. Furthermore, air heating permits the use of a filtering mechanism, so that the air may be actually cleaner.

## GAS EMBOLISM AND THE RUBIN TEST

To the Editor:—*How should a gas embolism that might be produced by a tubal insufflation (Rubin test) be treated? I read in the* British Medical Journal *about a method of aspirating the gas by introduction of a needle into the right auricle. What is the technique involved in this procedure?*

*M.D., Mexico.*

Answer.—The gas used in the Rubin test is carbon dioxide, and, so far as is known, there has been no report of embolism following the use of this gas. Because of its rapid absorption by the blood stream, it does not act as a foreign body in the circulatory system, as would air. Embolisms, some of which have been fatal, have followed the insufflation of air, which, unfortunately, is still used by some physicians. A review of recent numbers of the *British Medical Journal* has not revealed a description of the technique of needle puncture of the auricle to which the query refers, but, in the light of what has been said, it would have no value in the treatment of a supposititious carbon dioxide embolism.

## EXAMINATION FOR RINGWORM

To the Editor:—*What is the best method of examination for ringworm of the scalp in a mass survey to be conducted in schools and private practice? Is hair fluorescence under the Wood's light sufficient for diagnosis or are confirmatory microscopic examination or culture studies necessary?*

*Samuel Newman, M.D., Danville, Va.*

Answer.—Examination with the Wood's light alone may suffice for screening purposes in a mass survey, but all three procedures are necessary for suspected cases: examination with a Wood's light, microscopic examination of epilated hairs, and culture studies for classification of the organism.

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

## TUBERCULOUS CHOROIDITIS

To the Editor:—*I desire information on the use of the new drugs streptokinase and streptodornase in ophthalmologic diseases. I am especially interested in use of these drugs in treating choroiditis with vitreous haze, thought to have a tuberculous etiology.*

*Robert W. Collier, M.D., Oakdale, La.*

Answer.—Streptokinase and streptodornase would not be effective in the treatment of choroiditis of tuberculous etiology. To date, these enzymes have been used for the treatment of severe purulent bacterial conjunctivitis and keratitis as adjuncts to proper chemotherapy and antibiotic therapy. The enzymes must be applied every two or three hours to permit adequate contact with their substrates, which are fibrin and desoxyribose nucleoprotein.

## SURGERY IN GAS GANGRENE

To the Editor:—*What procedures and techniques are to be used when operating on a patient with gas gangrene? Would this treatment be different from that used for other infectious wounds, such as abscessed rectum and pelvic abscesses. How are the linens handled? We are attempting to set up controls in our surgical department.*

*Merrill S. Davis, M.D., Marion, Ind.*

Answer.—No different technique is required for operating on wounds infected with gas gangrene bacillus than on any other infected wounds, especially those involving the rectum. If the linens are handled in the usual way, by autoclaving, no other procedure is necessary.

## RADIATION OF PHARYNGEAL LYMPHOID TISSUE

To the Editor:—*What is the consensus regarding radium or roentgen ray treatment of nasopharyngeal lymphoid tissue in children to improve hearing?* *H. Fein, M.D., Boston.*

Answer.—Lymphoid tissue in the nasopharynx causing hearing difficulties in children may be treated by radium or roentgen rays, providing such treatment is given by experts. This therapy is widely accepted and involves no more hazard than roentgen therapy commonly used in various other parts of the body. This treatment may be disappointing at times but should not be dangerous. Usually, the results are gratifying, and relief lasts for long periods.

## ELECTRIC SHAVERS AND ACOUSTIC TRAUMA

To the Editor:—*Have there been any studies made of hearing loss due to the effect of noise from daily shaving with an electric shaver? I appreciate the difficulty of separating the effect of this acoustic trauma from others suffered in daily life but would like an opinion.*

*E. L. Manning, M.D., Davenport, Iowa.*

Answer.—It is unlikely that daily shaving with an electric shaver would produce measurable acoustic trauma. Perusal of medical literature fails to reveal reports or studies in this connection.

## PAINFUL AURICULAR NODULE

To the Editor:—*How can I treat a painful auricular nodule? The nodule has been thoroughly destroyed, but the pain still remains.* *M.D., Massachusetts.*

Answer.—The pain may be due either to residual chondritis or to incomplete destruction of the nodule. The latter is the more likely. If the pain should persist after a reasonable amount of treatment with soothing measures, it will be necessary to destroy the remnants of the nodule.

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# "ARMCHAIR" TREATMENT OF ACUTE CORONARY THROMBOSIS

*Samuel A. Levine, M.D.*
*and*
*Bernard Lown, M.D., Boston*

Rest for a diseased organ, be it a fractured limb or a tuberculous lung, is a therapeutic principle validated by clinical experience. It is believed that activity, with its complex biochemical and physical demands, diverts from the reparative process the available energy essential for optimal healing. When the heart is diseased, the only feasible application of the principle of rest is the attempted diminution of the cardiac load. Rest in bed has been traditionally regarded as tantamount to optimal rest for the heart. This is the practice in congestive heart failure and finds its most rigid application in acute coronary thrombosis, when the patient is placed flat in bed for three to six weeks.[1]

It has been our view that recumbency in bed affords less rest to the heart than the sedentary position in a chair with the feet down.[2] The recumbent position permits maximal venous return from the periphery with associated increases in blood volume, venous pressure and ventricular diastolic filling, and augmented volume work for the heart. While the sitting position permits gravity to mobilize fluid into the dependent parts of the body, the recumbent position encourages the pooling of fluid in the pulmonary circuit. The former is essentially harmless; the latter may be disastrous. The abruptness of the onset of coronary thrombosis, with its grave prognostic connotations, afflicting as it frequently does the highly active and previously healthy person, when coupled with long-continued bedrest, saps morale, provokes desperation, unleashes anxiety, and ushers in hopelessness with respect to resumption of normal living. The deleterious physical equivalents of such emotional disquiet and psychological tension, though not measurable, are evident to both the physician and the family. A host of other harmful sequelae of bedrest have been emphasized, such as inanition, constipation, thrombophlebitis, osteoporosis, negative nitrogen balance, hypostatic pneumonia, atelectasis, and prostatic difficulties.[3] In short, the bed is not a resting place for the patient with cardiac disease.

In recent years, one of us has observed patients with acute coronary thrombosis who were becoming worse despite all known measures and then were benefited immediately and remarkably after being placed in a chair. The above-cited theoretical objections, combined with such gratifying experience, have induced us, during the past year and a half, to modify the treatment of acute coronary thrombosis. We believe that by getting these patients promptly out of bed and into a chair, we achieve more rest for the heart than is attained with traditional procedures.This is a preliminary report of results of the "armchair" treatment in 81 patients.

## MATERIAL AND METHODS

Of the 81 patients with acute coronary thrombosis, 57 were admitted to the medical service of the Peter Bent Brigham Hospital and 24 were treated at home or in other hospitals. In all instances, diagnosis was established on clinical as well as electrocardiographic data. In the majority, 12 lead serial tracings showed characteristic changes of the acute process. Excluded from evaluation are patients with mild symptoms in whom the findings were explicable on some other basis or those in whom doubt was entertained as to the correctness of the diagnosis. Chart 1 summarizes some of the clinical features in the 81 cases at the time of admission. There is no doubt that this was a selected group. Among other evidence for this is the high frequency of paroxysmal arrhythmias. That the condition was not mild in this group is attested by the fact that nearly half the patients had

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Read before the Association of American Physicians, Atlantic City, N. J., May 1, 1951.

From the Medical Clinic of the Peter Bent Brigham Hospital and the Department of Medicine, Harvard Medical School.

[1] Levine, S. A.: Coronary Thrombosis: Its Various Clinical Features, Medical Monographs, Baltimore, Williams & Wilkins Company, 1929, vol. 16. White, P. D.: Heart Disease, Macmillan Medical Monographs, ed. 3, New York, The Macmillan Company, 1944. Levy, R. L.: Diseases of Coronary Arteries and Cardiac Pain, New York, The Macmillan Company, 1936. Friedberg, C. K.: Diseases of Heart, Philadelphia, W. B. Saunders Company, 1949.

[2] Levine, S. A.: Some Harmful Effects of Recumbency in Treatment of Heart Disease, J. A. M. A. **126**: 80 (Sept. 9) 1944.

[3] Dock, W.: Evil Sequelae of Complete Bed Rest, J. A. M. A. **125**: 1083 (Aug. 19) 1944.

pulmonary edema and a fifth of all the patients were rapidly digitalized after entering the hospital. Whether this is a proper method of treatment is open to question.

The majority of patients were out of bed during the first two days. They were helped out of bed and placed into a comfortable mobile chair, with care taken so that no pressure was exerted on the popliteal spaces. They remained in a chair until they experienced fatigue. Our goal was to have these patients out of bed as much of the day as was possible without discomfort to them. This was achieved in some who were in the chair most of the day from the beginning of their illness. For the majority, however, this usually meant that they were out of bed about one to two hours during the first day with increasing time intervals thereafter, so that by the end of the first week they spent the larger portion of the day in a chair. The contraindications to use of the chair were (1) a continuing state of shock, (2) marked debility, and (3) concomitant cerebrovascular accident. High temperature, severe pain, a friction rub, a diastolic gallop, heart block, cardiac arrhythmias, or the need for oxygen were not regarded as contraindications to such treatment. Nearly all patients fed themselves and were either permitted the use of the bedside commode or granted toilet privileges. Anticoagulants were administered to all but nine patients. Aside from the elevation of the headposts of the bed by 8 to 9 in. blocks,[4] routine care for coronary disease was given. A few steps were allowed by the end of the third week, and hospitalization was maintained for about four weeks.

| | | | |
|---|---|---|---|
| SEX | Male<br>Female | 68<br>13 | 84 %<br>16 % |
| AGE, YEARS | Range | 42—80 | |
| | Mean | 58.4 | MALE——57.3<br>FEMALE—64.0<br>LIVING——56.0<br>DEAD——73.0 |
| PREVIOUS CORONARY ARTERY DISEASE | Angina Pectoris | 45 | 54.8 % |
| | Coronary Thrombosis | 26 | 32.1 % |
| COMPLICATIONS ON ADMISSION | Pulmonary edema | 39 | moderate - 30<br>severe - 9 |
| | Shock | 10 | |
| | Arrhythmias | 15 | |
| | | A. fibrillation | 8 |
| | | A. flutter | 5 |
| | | Nodal tachycardia | 4 |
| | | P.A.T. | 1 |
| | | Ventricular tachycardia | 2 |
| DIGITALIZED ON ADMISSION | | 17 | |

Chart 1.—General features in 81 cases of acute coronary thrombosis. A = auricular. P.A.T. = paroxysmal auricular tachycardia.

RESULTS

Among the 81 patients, there were eight deaths, a mortality of 9.9%. Chart 2 gives data on the 73 surviving patients. Except for two patients, one of whom was out of bed on the eighth and the other on the ninth day, all the patients were in a chair within the first week in the hospital, 86% within the first three days. Convalescence was uneventful in 36 patients; i. e., these patients suffered no complications and had uninterrupted recoveries. Results were good in 27. This group, in addition to their occlusions, had either paroxysmal rapid heart action, shock, or pulmonary edema but nonetheless had a smooth course. The "remarkable" group was comprised of 10 patients who were characterized by the house staff as "critically" or "terminally" ill. They had one or more of the above-enumerated complications, and the inception of recovery appeared to coincide directly with their being placed in a chair. In the following report are described four of the 10 with striking improvement.

REPORT OF CASES

Case 1.—F. B., a 60-year-old man, was admitted with a fresh posterolateral infarction, the second in eight months. He was acutely ill and in semicoma. His temperature was 101 F, the white blood cell count was 22,000 and a corrected sedimentation rate was 88 mm. per hour. He had a bigeminal pulse and was in shock, with a blood pressure of 35/0. His pressure was maintained with the use of phenylephrine hydrochloride. He continued to be critically ill until 40 hours later, when he was placed in a chair. He began to walk on the 21st day and was discharged on the 29th day. Having had a myocardial infarction some months before, when he was kept in bed for eight weeks, he volunteered, "What a happier time I had with this attack!" This notwithstanding the severer onset of the second episode. One year later he was in good condition. X-ray and an electrocardiogram, showed that the heart was essentially normal.

Case 2.—S. Q., a 51-year-old man, had an anteroseptal infarction and a ventricular aneurysm due to an old coronary thrombosis. He had had two previous cerebrovascular accidents and had residual hemiplegia. He was in congestive heart failure and was regarded variously as "gravely," "critically," and "terminally" ill. Serial tracings showed auriculoventricular dissociation, then paroxysmal auricular tachycardia with block, and later auricular flutter. He was digitalized by the intravenous route. Despite the administration of nikethamide and oxygen, he continued to be extremely drowsy. When he was taken out of bed, on the third day, the drowsiness abated promptly; progress was then continuous. He was permitted to walk on the 25th day and was discharged on the 33rd day.

| | | |
|---|---|---|
| DAY OUT IN CHAIR | 1st | 15 |
| | 2nd | 30 |
| | 3rd | 18 |
| | 4-9th | 10 |
| PROGRESS | uneventful | 36 |
| | good | 27 |
| | remarkable | 10 |
| COMPLICATIONS | 6 | 1 HEPATITIS<br>2 HEMATURIA<br>1 FEVER 15th day<br>1 PAROX. TACH c̄ C.F. 13th day<br>1 RECURRENT PAIN 21st day |
| PERSISTENCE OF S-T SEGMENT ELEVATION | 5 | 1 Aneurysm demonstration by *roentgenogram*<br>1 Roentgenogram normal<br>3 No roentgenogram |
| DURATION OF HOSPITALIZATION in 46 CASES | RANGE | 15-35 days |
| | AVERAGE | 24 days |

Chart 2.—Results of "armchair" treatment of 73 patients who survived. Parox. Tach. = paroxysmal tachycardia. C.F. = congestive failure.

Case 3.—E. K., a 60-year-old hypertensive woman, had a posterior myocardial infarction and a history of a previous coronary occlusion. For a day prior to admission she had an Adams-Stokes syndrome. On the day of entry she was unconscious and in shock. Her heart rate was 220, and she was proved to have a paroxysm of ventricular tachycardia. Intravenous administration of 1.3 gm. of procaine amide hydrochloride was required to stop this attack. Subsequently, auriculoventricular dissociation developed. On the third day, because of the appearance of pulmonary edema, she was placed in a chair. Improvement was rapid and uneventful.

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[4] Levine, S. A.: Clinical Heart Disease, ed. 3, Philadelphia, W. B. Saunders Company, 1945.

Case 4.—J. B., a 46-year-old man, had an extensive anterior wall infarction. For two days he continued to have excruciating chest pain. His temperature was 102 F, and he was drowsy, had profuse sweating, a friction rub, and pulmonary edema. On the second day auricular fibrillation developed. He was digitalized rapidly. He got along very poorly until he was taken out of bed, on the second day. Improvement was steady; he walked on the 19th day and was discharged on the 28th day.

## COMMENT

The few complications that occurred in our series were not attributable to the "chair" treatment. There were no instances of thrombophlebitis or pulmonary embolism. The patient who had a fever episode on the 15th day had a normal chest roentgenogram and responded promptly to penicillin therapy. That pulmonary edema rarely develops after the institution of the "chair" treatment strongly suggests that this complication was actually prevented by this method. While a number of patients had angina pectoris, only one had severe pain simulating a recurrence of thrombosis. However, the electrocardiogram and laboratory studies failed to corroborate this. The most encouraging aspect of this type of care for patients with an acute coronary attack was the continued sense of well-being and high morale. This was especially apparent in those experiencing their second or third occlusion. Their invariable comment indicated that the current episode was easier to bear. When they were permitted to walk, there was no collapse, dizziness, or weakness. Convalescence proceeded without mishap, and the patient seemed prepared for every increased stress placed on the heart. Chart 3 and the table summarize the salient facts concerning the eight patients who died. Their mean age was 73.0 years, as contrasted with 56 years for the living. Three of the eight who died were women, though women constituted only 16% of the total group. This high mortality is probably due to both the older age group of the women in this study and to the greater incidence of paroxysmal rapid heart action among them. Five of the 13 women had bouts of rapid heart action. Seven of the 15 patients with paroxysmal arrhythmia died. Similar testimony as to the gravity of paroxysmal rapid heart action associated with acute coronary thrombosis has been provided in previous publications.[5] Two of the eight deaths that occurred in the entire series were attributed to pulmonary emboli, substantiated in one case at autopsy. In neither case had adequate anticoagulants been administered. Among the nine cases in this series in which anticoagulants had not been given, there were two deaths. Of the 72 cases in which either bishydroxycoumarin or heparin had been given, there were six deaths. Thus, in the group of "chair"-treated patients who also received anticoagulants, there was a mortality of 8.3%.

A certain mortality is to be expected in myocardial infarction irrespective of the type of treatment. The immediate mortality is known to be enhanced by advanced age, paroxysmal arrhythmias, heart block, shock, and congestive heart failure.[6] The eight patients who died had various combinations of the above factors. There is no evidence that the "chair" treatment was responsible for the fatalities in this group of patients.

This type of treatment of acute coronary thrombosis was first employed 14 years ago, and a report of this was made three years later.[7] The patient described was dying of severe congestive heart failure and pulmonary edema. All therapeutic measures were unavailing. He was placed in a chair in the hope that gravity would divert fluid from the lungs into the lower extremities. This was achieved, and a prompt recovery resulted. The patient was still alive some years later. During the decade that has ensued since that initial experience, physiological and clinical observations have made possible a reformulation of the principle of rest for the injured heart. Perera and

| | | |
|---|---|---|
| SEX | MALE | 5—7.3 % of ♂ |
| | FEMALE | 3—23% " ♀ |
| AVERAGE AGE | | 73 |
| TYPES OF OCCLUSIONS | POSTERIOR | 3 |
| | ANTERIOR | 1 |
| | A.S.I. | 1 |
| | A.L.I. | 1 |
| | "ROESLER DRESSLER" | 2 |
| PREVIOUS OCCLUSIONS | | 4 |
| COMPLICATION on ADMISSION | PULMONARY EDEMA | 7 |
| | SHOCK | 3 |
| | PAROXYSMAL RAPID HEART ACTION | 7 |
| DIGITALIZED | ON ADMISSION | 6 |
| | MAINTENANCE | 2 |
| TIME of DEATH | 1st WEEK | 4 |
| | 2nd WEEK | 4 |

Chart 3.—Analysis of the eight cases in which death occurred. A.S.I. = anteroseptal infarction. A.L.I. = anterolateral infarction.

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Berliner [8] found that, when patients with hypertensive cardiovascular disease are placed in bed, within 12 to 24 hours there is hemodilution, a rise in blood volume, an increase in venous pressure, and a decrease in the vital capacity of the lungs. McMichael and McGibbon [9] noted that even patients without cardiac disease show a 200 cc. diminution in the vital capacity on lying down. The fact that patients with congestive heart failure do well after being placed in bed, we believe, is merely evidence of the efficacy of other therapeutic tools, such as the use of a salt-poor regimen, diuretics, digitalis, morphine, and oxygen, in counteracting the stress placed on the heart by the recumbent position.

*Clinical and Pathological Features of the Eight Patients (9.9% of Total) Who Died*

| | | | | Previous Myocardial Infarction | Complications on Admission | | | | Therapy | | | Day of Death | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Patient | Age, Yr. | Sex | Type of Occlusion | | Pulmonary Edema | Shock | Arrhythmia | *Miscellaneous* | Anticoagulant | *Digitalization* | Day Out of Bed | Day of Hospitalization | Day After Coronary | Postmortem Findings |
| J. F. | 74 | M | "Roesler Dressler" | Yes | 1+ | 0 | Auricular fibrillation | 2° heart block<br>Uncontrolled vomiting | Yes | Yes | 3rd | 5 | 26 | 0 |
| D. M. | 60 | M | Antero-*septal* | No | 2+ | 0 | Auricular flutter | Right bundle branch block | Delayed | Yes | 2nd | 11 | 16 | 0 |
| J. S. | 69 | M | Posterior | Yes | 2+ | 0 | Auricular fibrillation<br>Auricular flutter | 2° heart block<br>Left bundle branch block | Yes | Yes | 2nd | 7 | 10 | 0 |
| M. O. | 80 | F | Posterior | No | 1+ | Yes | Auricular fibrillation<br>Auricular flutter | Cerebrovascular accident on 3rd day | 0 | Yes | 2nd | 10 | ? | Acute posterior *myocardial in*farct<br>Massive pulmon embolism<br>Cerebrovascular thrombosis |
| *E. R.* | 77 | *F* | Postero-lateral | No | 3+ | 0 | Paroxysmal auricular tachycardia | 0 | Yes | Yes | 2nd | 7 | ? | Acute posterior infarction<br>No pulmonary *edema* |
| N. C. | 70 | F | Antero-lateral | Yes | 3+ | Yes | Auricular fibrillation | Old myocardial aneurysm<br>*Comatose* 36 hr. | Yes | Yes | 4th | 18 | ? | Fresh myocardi infarction with cardiac rupture<br>*Old infarction a* left ventricular aneurysm |
| L. B. | 71 | M | Posterior | No | 1+ | 0 | 0 | Marked *intraven*tricular block | Yes | Maintenance | 2nd | 4 | 5 | Occlusion of rig and left circumflex arteries<br>Post myocardial and septal infarction |
| M. C. | 79 | M | Anterior | Yes | 3+ | 0 | Paroxysmal ventricular tachycardia | 0 | Yes | Maintenance | 2nd | 4 | 5 | 0 |

In the evaluation of any therapeutic innovation for acute coronary thrombosis, attention must be directed to the immediate mortality and the incidence of complications. Stock must also be taken of the patient's senses of well-being during treatment and the ease of recuperation after treatment. An assessment of the usefulness of a new method must rest also on its effects on the ultimate prognosis and the patient's capacity for resuming a productive life. As regards the eventual course of the "chair"-treated patients with coronary disease, no data are as yet available. There is no reason, however, for presuming a worsening of prognosis.

The enhanced sense of well-being was one of the most spectacular features in this series. Our inability to present this graphically does not, we believe, detract from its validity. When a patient is placed at complete bed-rest after an acute coronary thrombosis, profound psychological changes follow. The patient who was active and well a few hours previously now feels as though death was hovering close by. This impression is reinforced by the physician's insistence on complete bedres and the prohibition of even minimal movements. Th patient thus abruptly feels he is at the mercies of forc over which he has no mastery. What is even more p vocative of anxiety is the fact that he is left without a gage to assess the presence, extent, and speed of progre That anxiety may be especially harmful to the patie with acute coronary disease may be deduced fr Stead's [10] work; he found that emotion causes a mark increase in cardiac output. In contrast to this, the patie in a chair need never view himself as hopelessly ill. Wh is most important, however, is that the gradually increa ing time out of bed provides him with the clearest ind of improvement. He is made to feel he is an aware a active participant in the healing process. This awaren is more potent in allaying fear and dissipating anxie than any of the physician's words of encouragement.

Dietrick and co-workers,[11] in their studies of t effects of long-continued recumbency on healthy hum volunteers, found that exercise tolerance as measured by currently used stress tests was markedly reduced for many weeks. Tilt-table studies on these subjects showed a tendency to fainting. During bedrest there occurred a loss of those circulatory adjustments necessary for the maintenance of erect posture. These changes were principally due to a diminution of tone of either muscles or vasculature of the lower extremities, with venous engorgement, stasis, edema, and increased capillary fragility. The patients in this series did not manifest these sequelae when ambulation was started.

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The incidence of complications was negligible and in no instance attributable with any certainty to this plan of treatment. In the management of acute coronary thrombosis, pulmonary congestion and edema are common and serious complications. The most striking feature of this method of treatment is its effect on the pulmonary manifestations of cardiac failure. This was apparent in different ways. In those patients who were dyspenic or orthopneic or showed disseminated pulmonary rales, there was prompt improvement directly after they were placed in a chair. Also, in the four patients examined post mortem, the lungs were particularly free of edema. There was only one instance of pulmonary edema that developed after this method of treatment was instituted. This occurred in a woman on the 13th hospital day and was precipitated by a bout of paroxysmal rapid heart action. Satisfactory recovery took place with continued "chair" treatment.

Employing this treatment in alternate patients as a method of obtaining adequate control series was not feasible. The lack of such a selected control group precludes the statistical evaluation of our mortality figures. In some cases the physician and in others the patient's family refused to accept this method of treatment. The prevailing view is that patients with cardiac disease are expected to die in bed. If fatalities occur out of bed, the physician is held culpable. It should be emphasized that a significant number of the patients in this present study were seen in consultation practice; because of this, the series is weighted with gravely ill patients. It is of interest that during this limited experience there were 30 consecutive cases of coronary thrombosis in one of our public wards with only one fatality. The only basis of comparison that we have is the 138 consecutive patients with acute coronary disease treated with anticoagulants at the Peter Bent Brigham Hospital just prior to our study. The immediate mortality was 13.8%, compared with 8.3% for the "chair"-treated patients receiving anticoagulants. The small size of our present series and the lack of alternate controls prevents our attaching undue significance to this difference. We believe, however, that it has significance insofar as it helps dissipate the conception that the sitting position out of bed increases mortality among patients with acute coronary thrombosis.

The present trend in care of patients with coronary disease is a liberalization of the rigid restrictions of activity hitherto practiced. Our prime concern in this study has not been with activity of the patient, but rather with rest for the heart. A suggestion has been recently made that rest in bed be limited to two weeks, followed by a gradual increase in activity.[12] It should be borne in mind that most of the serious complications occur during the first two weeks, when the majority of fatalities occur and when pulmonary congestion begins to threaten. It is therefore during this very period that it is desirable to obtain the beneficial effects of the "chair" treatment.

A possible hazard of this treatment is that it may encourage an easy-going attitude toward the gravity of the process being treated. The fact that someone is in a chair evokes the feeling that the patient cannot be very ill. Such an approach might obviate some or all of the benefits achieved with this treatment. The tenacity with which bed rest has been promulgated for acute coronary thrombosis is no measure of its value, though the correct amount of true physiological rest is important. A proper conception of the principle of rest must embody an appreciation of the burdens on the heart resulting from the recumbent position and anxiety.

## SUMMARY AND CONCLUSIONS

1. Physiological as well as clinical studies adduce evidence to support the view that strict rest in bed is injurious to the patient with congestive heart failure.

2. The sitting position in a chair with the feet dependent obviates some of the harm of strict bedrest.

3. This principle has been applied in the treatment of 81 patients with acute coronary thrombosis. These patients were kept in a chair varying and increasing portions of the day, beginning not later than the first week of the attack.

4. There were eight deaths, an over-all mortality of 9.9%. All other methods of treatment usually employed in coronary thrombosis were used. If only the patients who received anticoagulants are considered (72 patients), the mortality was only 8.3%. There were no complications attributable to the "armchair" treatment. The prompt improvement shown by some of those desperately ill with congestive heart failure after being placed in a chair was particularly impressive.

5. This method of treatment also appeared to have beneficial effects on the psychological state of the patient and facilitated the rehabilitation process.

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**Bad Habits in Children.**—What are frequently thought of as "bad habits" in children, thumb-sucking, head-knocking, masturbation, nail biting, the ritualistic behavior in connection with getting to bed at night and many other such manifestations are more or less common at one or another time in the life of every child. These habits can be used negativistically because they are objectionable to the adults in charge and are for a certain period persistent actions which do not yield readily to external pressures. It is too seldom appreciated that behind this behavior there is anxiety which the child attempts to master in one of these ways, so as to maintain or restore his psychic equilibrium and comfort. These so-called "bad habits" cannot constructively be influenced except through the recognition of the underlying anxieties and through attempting to relieve them. Meanwhile, tolerance for the behavior and avoidance of attempts to suppress it should rest on an understanding of its unconscious purposeful nature.—Hunter P. Harris Jr., M.D., Some Aspects of Negativistic Phenomena, *Southern Medical Journal,* January, 1952.

# ANOXIA IN MYOCARDIAL INFARCTION AND INDICATIONS FOR OXYGEN THERAPY

*Craig W. Borden, M.D., Richard V. Ebert, M.D.*
*and*
*Russell H. Wilson, M.D., Minneapolis*

Oxygen therapy has been widely employed in the management of patients with coronary thrombosis and myocardial infarction because it has been reputed to relieve pain.[1] Thrombosis of a coronary artery leads to necrosis of the myocardium in the area supplied by this vessel. Adjacent to the necrotic muscle is viable but ischemic muscle, which gives rise to pain and represents a threat to the patient in that it, too, may undergo necrosis or give rise to ventricular fibrillation. One of the logical aims of therapy of myocardial infarction is to provide a more adequate supply of oxygen to the ischemic muscle until collateral circulation can develop. The inhalation of oxygen may accomplish this aim by increasing the oxygen content of the arterial blood so that each unit of blood carries more oxygen to the anoxic tissue. Oxygen therapy is also used to relieve dyspnea in myocardial infarction and to prevent the general deleterious effect of anoxia.

Despite the universal practice of giving oxygen to patients with myocardial infarction, little information is available regarding the oxygen saturation of the hemoglobin of the arterial blood in this disease. It is apparent that information is needed as to the severity of anoxia if therapy is to be rational.

## METHOD

Twenty-three men with acute myocardial infarction were studied as soon as possible after the diagnosis had been established by the classical criteria. Portable roentgenograms of the chest were made at the bedside the same day of the study and read for the presence or absence of pulmonary edema without knowledge of other data. After procaine hydrochloride infiltration, arterial blood samples were obtained anaerobically from the femoral artery. These samples were analyzed for oxygen content and capacity, carbon dioxide content and pH, with the use of methods previously described.[2] The $pCO_2$, was calculated from the nomogram of Singer and Hastings.[3] In calculation of the percentage of oxygen saturation of the hemoglobin, the following corrections were made: The oxygen content and oxygen capacity were corrected for oxygen dissolved in physical solution.[4] In calculation of the capacity, hemoglobin content was determined colorimetrically on blood samples before and after rotation in the tonometer to equilibrate with room air to correct for changes in red cell plasma ratio caused by drainage errors in glass vessels.[5] This correction in these data gave a decrease in the value of the determined oxygen capacity of 2.86%. When applied to data for normal men previously reported,[2] the mean normal oxygen saturation was 97.7%, a value similar to that reported by others.[6]

*Oxygen Saturation of the Hemoglobin of the Arterial Blood in Patients with Myocardial Infarction**

| | No. Patients | Oxygen Saturation, % | | pH | | $pCO_2$ | |
|---|---|---|---|---|---|---|---|
| | | Average | Range | Average | Range | Average | Range |
| Group I †....... | 17 | 94.1 | 88.0-96.8 | 7.39 | 7.30-7.45 | 38.6 | 32.8-50.1 |
| Group II ‡...... | 6 | 80.8 | 61.4-92.4 | 7.39 | 7.35-7.45 | 41.6 | 31.5-58.5 |
| Normal value......... | | 97.5 | | 7.40 | | 40 | |

* Values given represent mean and range for each group.
† Uncomplicated myocardial infarction.
‡ Myocardial infarction complicated by shock or pulmonary edema.

## RESULTS

Seventeen of the 24 patients had no evidence of pulmonary edema, either clinically or roentgenographically, and no evidence of the shock syndrome (group I). Of the remaining six patients (group II), four had definite roentgenographic evidence of diffuse pulmonary edema and no symptoms of shock; one had pulmonary edema and the shock syndrome, and one had the shock syndrome without signs of pulmonary edema in the roentgenogram of the chest.

The results for each group are given in the accompanying table. The patients in group I showed only a slight reduction in oxygen saturation of arterial blood as compared with those in group II, who showed a marked reduction. The pH and $pCO_2$ in both groups were normal.

The dosage and time of administration of morphine were noted for each patient. Examination of the results revealed no evidence that morphine had depressed ventilation of the lungs. This may be because large amounts of morphine were not given and because morphine was given in the presence of pain.

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Sponsored by the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

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## COMMENT

The reduction in oxygen saturation of the hemoglobin of the arterial blood in myocardial infarction is caused in large part by pulmonary edema. The presence of edema fluid in the lungs interferes with diffusion of oxygen from the alveolar air to the blood in the pulmonary capillaries.[7] As a result, the oxygen tension in the blood leaving the lung is much lower than the alveolar oxygen tension. Carbon dioxide, on the other hand, diffuses much more readily through fluid, so that the carbon dioxide tension in the blood remains relatively normal.

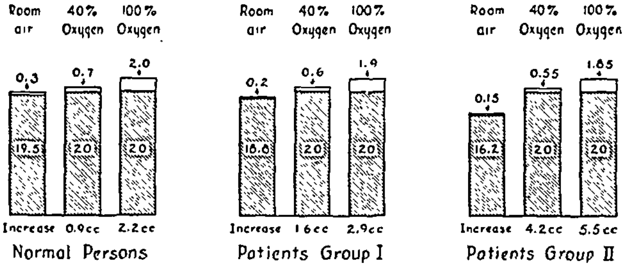
The purpose of this study was to define more accurately the indications for oxygen therapy in myocardial infarction. The results indicate that, in the patient without pulmonary edema or shock, the degree of anoxia is mild and of no importance to the body as a whole. The sole purpose of oxygen therapy in this group of patients would be the provision of greater amounts of oxygen to ischemic areas in the myocardium. On the other hand, in those patients with evidence of pulmonary edema or shock, the anoxia may be severe. Oxygen therapy is mandatory to combat the general effects of anoxia on the body as well as to supply additional oxygen to the myocardium. It is evident that the use of oxygen therapy is imperative when pulmonary edema or shock complicates myocardial infarction and is of doubtful value in the uncomplicated disease.

A consideration of the effect of oxygen therapy may be of value at this point. The amount of oxygen that can be added to the arterial blood by having the patient breathe oxygen instead of air is dependent on two factors: one is the oxygen saturation of the hemoglobin of the arterial blood, and the other is the concentration of the oxygen inhaled. The greater part of the oxygen in blood is chemically bound by hemoglobin. A small portion is in simple physical solution. This relationship is illustrated in the accompanying figure. In a normal human being breathing air, 19.5 cc. of oxygen is bound by hemoglobin in each 100 cc. of blood, and 0.3 cc. is in solution. The hemoglobin of the arterial blood is 97.5% saturated with oxygen. If this person now breathes a mixture of 40% oxygen and 60% nitrogen, the hemoglobin of the arterial blood will be completely saturated and the dissolved oxygen will be increased. The additional oxygen carried by each 100 cc. of arterial blood will be 0.9 cc. Of this amount, 0.5 cc. will represent additional oxygen carried by the hemoglobin. If 100% oxygen is breathed, the amount of oxygen chemically bound by the hemoglobin is the same, but an additional 1.3 cc. of oxygen can be physically dissolved in each 100 cc. of blood. Thus the maximum amount of oxygen that can be added to the arterial blood of a normal person by breathing 100% oxygen is 2.2 cc. for each 100 cc. of blood. On the other hand, if a patient is anoxic and the hemoglobin of the arterial blood is unsaturated, much more oxygen can be added to the arterial blood. The average oxygen saturation of the hemoglobin of the arterial blood of the patients in group II was 80.8%. Inhalation of 40% oxygen would add 4.2 cc. of oxygen to each 100 cc. of arterial blood, of which 3.8 cc. would be chemically bound by hemoglobin. Breathing 100% oxygen would add 5.5 cc. of oxygen to each 100 cc. of blood. The corresponding figures for the patients in group I would be a 1.6 cc. increase by inhalation of 40% oxygen and a 2.9 cc. increase by inhalation of 100% oxygen.

From the above consideration it is evident that relatively little additional oxygen is added to the blood of patients with uncomplicated myocardial infarction by administration of oxygen in a concentration of 40%. Nearly twice the amount of oxygen can be added to the blood if the patient inhales 100% oxygen. Hence, if oxygen is to be administered at all to patients with uncomplicated myocardial infarction, it would appear preferable to utilize a mask rather than an oxygen tent. Under optimum conditions a concentration of 40% oxygen can be achieved in an oxygen tent.[8] If care is not exercised, the concentration is 25% to 30%. With the proper use of the BLB mask, a concentration of oxygen of 92% can be obtained in the alveolar air.[9]

## SUMMARY

The oxygen saturation of the hemoglobin of the arterial blood was studied in a group of 23 patients with myocardial infarction. The mean value in those patients without pulmonary edema or shock was 94.1%, and the mean value in those patients with pulmonary edema or shock was 80.8%.



Oxygen content of 100 cc. of blood in normal persons and both groups of patients breathing room air, 40% oxygen and 100% oxygen. Shaded area represents oxygen chemically bound by hemoglobin. Clear area represents oxygen in physical solution.

On the basis of these findings it is apparent that the use of oxygen therapy is mandatory in those patients with pulmonary edema or shock and of questionable value in the patients with uncomplicated myocardial infarction. If oxygen is used in the latter group, it should preferably be given in high concentration by mask rather than in the lower concentration obtained by use of an oxygen tent.

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**Local Anesthesia.**—Epinephrine in 1:200,000 dilution will greatly prolong (triple or quadruple) the action of local anesthetic agents. Use 0.5 cc. of a 1:1,000 solution of epinephrine to 100 cc. of 1 per cent procaine hydrochloride. However, epinephrine or other vasoconstrictor agent is not to be used with local anesthetic agents in surgery of the fingers, toes, ears, nose, penis or scrotum. Sloughs may be caused if this is done. Epinephrine is not to be added to local anesthetics if their action is to be supplemented with cyclopropane, chloroform or ethyl chloride.—Henry K. Beecher, M.D., Early Care of the Seriously W ed Man, Springfield, Charles C Thomas, Publisher, 1952.

# HISTORY OF THE TREATMENT OF CORONARY HEART DISEASE

## FRANK BILLINGS LECTURE

*N. C. Gilbert, M.D., Chicago*

It was not my good fortune to have been one of Dr. Billings' students, but I was fortunate in my association with him in various medical affairs. He was always interested and interesting. I never failed to be impressed by his store of practical wisdom, his sense of relative values, and his quick recognition of the essential details of any matter under discussion.

Dr. Billings contributed a great deal to American medicine. The American Medical Association is greatly indebted to him for his leadership in much of the best that this organization represents. Together with hundreds of others, I owe him a great deal. He was a strong man in every way and a leader and teacher of men.

The story of angina pectoris as an expression of coronary disease long precedes Heberden's "Some Account of a Disorder of the Breast," which established it as a clinical entity. But it is with Heberden [1] that any account of treatment begins. It was over 100 years after Heberden that coronary occlusion was differentiated as a distinct entity, the basis of which is coronary insufficiency. George Dock,[2] in another Billings lecture, has given an account of the history of coronary disease and of coronary occlusion; I shall confine myself largely to the treatment of coronary disease.

Heberden's description of the indications for therapy are quite as we see them now. He was impressed by the symptoms suggesting "ills justly attributed to the disturbed function of the nerves." For generations afterward, the nervous aspects of angina pectoris have continued to be given weight. "With respect to the treatment of this complaint," wrote Heberden, "I have little or nothing to advance. Quiet and warmth and spirituous liquors help to restore patients who are nearly exhausted and to dispel the effects of a fit which does not soon wear off. Opium taken at bedtime will prevent the attacks at night. Bleeding, vomits, and purging appear to me to be improper." But in his Commentaries [1] he added: "Wine or spirits mixed with water have gradually led on several to be sots and have ruined more constitutions than ever were hurt by small beer from its first invention."

Heberden's conservative methods were not always adhered to. In 1795 Samuel Black [3] reported a case in which he used "issues," "blisters," and, as he says, "a variety of medicines adapted to the indications were prescribed, such as antimonial and mercurial alteratives, the volatile tincture of guaiac with antimonial wine, laxatives, etc." He tells of a contemporary physician of eminence and much experience, who gave his patient tar water "to the amount of a jill three times a day." This was "uniformly observed to excite a considerable diuresis." For the spasmodic nature of the attacks, Black tried a variety of remedies, such as "the Peruvian bark, the fetid gums, camphor, and the extractum cicutae (hemlock) to the amount of 20 grains twice a day in which dose it excited headache and tremors. For the relief of the paroxysms, when present, I had recourse to the vitriolic ether and the tincture thebaica in peppermint water. . . . Notwithstanding such varied treatment, the effects of the remedies employed were far from corresponding with my earnest wishes." Dr. Haygarth,[4] prescribed for one of his patients an anodyne draft to be repeated every two or three hours if the pain did not abate. "A blister was also applied to the part." The patient was not better the next morning, so 12 oz. of blood were taken, and a "draught of Camph., gr., x. and Nitr., gr. xv., was given every 4 to 6 hours. And he was directed to drink very plentifully of acidulated diluting liquids. After using these he found immediate relief, and by continuing this method with a dose of Rochelle salts every second or third morning, his pain and fever in a few days entirely ceased. He gradually recovered."

Jenner [5] apparently had little faith in treatment, for in a body dissected by Paytherus, he had seen a thickening of the coronary arteries and what is now regarded as coronary thrombosis. In a letter to Heberden concerning anginal attacks, from which his friend John Hunter was suffering, he stated, "Should it be admitted that this [coronary changes] is the cause of the disease, I fear the medical world may seek in vain for a remedy." Hence, he avoided discussing his findings and his views for fear of alarming his good friend Hunter.

Parry [6] was certain that the cause of angina pectoris lay in the coronary arteries, "either ossified or cartilaginous," and advised very conservative treatment. He considered that "mischief might be done by some drugs." "On the whole," he said, "it seems that during the paroxysm stimulants can be safely used only so far as they are required to get the gas off the stomach." Allan Burns,[7] in 1809, was a follower of Parry. He might, during a paroxysm, "detract a few ounces of blood." "Our decided object must be to allow the exhausted heart to slowly recover its lost energy." He might "hold some ammonia

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Read before the Section on Internal Medicine at the One-Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

Each year, at this time, it is the custom that an address be delivered before this Section, in honor of Dr. Frank Billings, one of the most distinguished of its members.

[1] Heberden, W.: Some Account of a Disorder of the Breast, M. Tr. Coll. Physicians 2: 59, 1786. Commentaries on the History and Cure of Diseases, Boston, Wells and Lilly, 1818.

[2] Dock, G.: Historical Notes on Coronary Occlusion: From Heberden to Osler; Billings Lecture, J. A. M. A. 113: 563 (Aug. 12) 1939.

[3] Black, S.: A Case of Angina Pectoris, with Remarks, Mem. M. Soc. London 4: 261, 1795.

[4] Haygarth, J.: A Case of Angina Pectoris, with an Attempt to Investigate the Cause of the Disease by Dissection, and a Hint Suggested Concerning the Method of Cure, M. Tr. Coll. Physicians, 3: 37, 1785.

[5] Jenner, E.: Letter to Dr. Heberden, The Life of Edward Jenner, M.D., with Illustrations of His Doctrines and Selections from His Correspondence, in Baron, J.: London, Henry Colburn, 1838, vol. 1, p. 39-40.

[6] Parry, C. H.: quoted by Burns, A.: Observations on Some of the Most Frequent and Important Diseases of the Heart, Edinburgh, Bryce, 1809.

[7] Burns, A.: Observations on Some of the Most Frequent and Important Diseases of the Heart, Edinburgh, Bryce, 1809.

over the nose," or give some aromatic powder to "aid in the expulsion of wind from the stomach."

Laennec[8] did not admit that coronary disease had anything to do with angina, although the two might coincide. He considered angina pectoris a neuralgia or rheumatism. He used two strongly magnetized steel plates anteriorly and posteriorly over the cardiac area. "The method is not infallible," he stated, "but it succeeded better than others." Hope[9] observed that "they who witnessed the application, did not, in general, form so favorable an opinion as the author himself." If Laennec had stopped there, the advantages of so harmless a treatment would have been obvious, but, when Laennec's magnetic plates did not succeed, he used blisters, sinapisms, venesection or leeches, wild laurel, digitalis, and the old reliable fetid gums. Then, as now, physicians found it just as hard to keep their hands off the medicine bottle as for a toper to keep his hands off the liquor bottle, I wish that I might continue to tell more of the early treatment of angina pectoris. One can not read the early records without a great sense of admiration for "our fathers of old," who were so sincere in their efforts and who had so little to do with. We who follow, have so much more to work with should feel very humble. Modern students could also learn much from the accounts of Gairdner,[10] Gibson,[11] Allbutt,[12] and the Osler monograph.[13]

For the next several decades angina pectoris was treated symptomatically by each physician according to his own lights. No matter what the basic diagnosis, whether spasm of the heart, diaphragmatic gout, or neuralgia, the treatment varied little—rest, diet, avoidance of undue effort, avoidance of gastric disturbances and relief of flatulence, spirituous liquors, sinapisms, pediluviums, spirits of nitrous ether, chloroform inhalations, Hoffmann's anodyne, strychnine, bromides, quinine, and digitalis. Treatment by bleeding also persisted for a long time. The importance of indigestion and of flatulence was well recognized. Carminatives were given constantly. Between the attacks, colchicum and tonics, especially iron, were used. The reports of successful use of arsenic were such that one almost becomes converted to its use. Trousseau[14] used atropine, but oftener belladonna, with or without sodium bicarbonate or carbonate. In this he was influenced by Bretonneau, "whose practical sense had not been stultified by the most extensive chemical knowledge."

In 1867 was made the first constructive contribution based upon what is now regarded as rational therapy, even though at the time the effect on the coronary vessels was not recognized. Dr. T. Lawder Brunton,[15] just finishing his medical studies, and a resident physician in the Edinburgh Royal Infirmary, was impressed by the effect of amyl nitrite in lowering blood pressure. He tried this drug on a patient with anginal attacks, and, after the patient had inhaled the fumes of from 5 to 10 drops, Dr. Brunton stated that his hopes were fulfilled. In 1879, there appeared serially in the *Lancet* a description of the effect of nitroglycerin by Dr. William Murrell.[16] This work further advanced the therapy of angina pectoris, although, at the time, the effect was ascribed to the relief of arterial tension. Dr. W. H. Madden,[17] in 1872, gave a report of his personal experience with amyl nitrite. He had supposed that its use was only for those whose faces were pallid during an attack, and because his face was flushed, he neglected using this drug. When he at last gave it a trial, the effect, he wrote, "was truly wonderful." It not only stopped each attack, but the attacks became less frequent. In describing his relief he said. "The presence of intense pain is not conducive to the exercise of calm, philosophic analysis, and I can only tell you what I felt." It was not until the observations of Sir Thomas Lewis[18] that it was shown that the relief of pain was due to the increased coronary flow and not necessarily to the decrease in peripheral resistance.

The diuretic effect of the xanthines had been recognized for at least 10 years, when, in 1895, Askanazy[19] reported improvement in cardiac asthma and in angina pectoris with the administration of theobromine sodium salicylate. He had observed this by chance when using that salt for its diuretic effect. This attracted little attention until 1902, when Breuer[20] wrote an article on angina pectoris. He wrote that, after 5 years' experience with theobromine, he could confirm Askanazy's results and that he regarded the recommendation of Askanazy as "one of the most praiseworthy therapeutic attainments of the last ten years." It was not long before the pharmacologists, starting with Hedbom[21] and Loeb,[22] followed by many others, showed that this series of drugs had a direct vasodilator effect on the coronary arteries, increasing the flow through the arteries and producing a more prolonged effect than the nitrites. A variety of other preparations have followed, with various advantages and disadvantages, up to the khellin preparations of recent date.

When symptoms are the result of insufficient blood flow to the heart muscle, it would seem rational to use agents that tend to increase that flow by direct action on the vessel wall, relaxing the vessel, without at the same time introducing other variables. While the use of coronary vasodilator drugs is common now, there are still those who profess not to obtain good clinical results.

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8. Laennec, R. T. H.: A Treatise on the Diseases of the Chest and on Mediate Auscultation, New York, S. Wood & Son, 1830, p. 702.
9. Hope, J.: A Treatise on the Diseases of the Heart and Great Vessels, London, Kidd, 1932, p. 466.
10. Gairdner, W. T.: Angina Pectoris and Sudden Death in Reynolds, J. R.: A System of Medicine, Philadelphia, Henry C. Lea's Son Co., 1880, vol. 2, p. 665.
11. Gibson, G. A.: Diseases of the Heart and Aorta, Edinburgh and London, Y. J. Pentland, 1898. Nervous Affections of the Heart, Edinburgh M. J. 3:324, 1903.
12. Allbutt, T. C.: Diseases of the Arteries Including Angina Pectoris, New York, The Macmillan Company, 1915.
13. Osler, W.: Lectures on Angina Pectoris and Allied States, New York, D. Appleton & Company, 1897.
14. Trousseau, A.: Lectures on Clinical Medicine Delivered at the Hôtel-Dieu, Paris, Philadelphia, Lindsay & Blakiston, 1867.
15. Brunton, T. L.: On the Use of Nitrite of Amyl in Angina Pectoris, Lancet 2:97, 1867.
16. Murrell, W.: Nitroglycerin as a Remedy for Angina Pectoris, Lancet 1:80; 113; 151; 225, 1879.
17. Madden, W. H.: Nitrite of Amyl in Angina Pectoris, Practitioner 9:331, 1872.
18. Lewis, T.: Material Relating to Coarctation of the Aorta of the Adult Type, Heart 16:205, 1933.
19.. Askanazy, S.: Klinisches über Diuretin, Deutsches Arch. klin. Med. 56:209, 1895.
20. Breuer, R.: Zur Therapie und Pathogenese der Stenokardie und verwandter Zustande, München. med. Wchnschr. 49:1604, 1902.
21. Hedbom, C.: Ueber Die Einwirkung gewisser Pflamzengifte Skandinav. Arch. f. Physiol. 9:1, 1899.
22. Loeb, O.: Uber die Beeinflussung des Koronarkreislaufs durch einige Gifte, Arch. f. exper. Path. u. Pharmakol. 5:64, 1904.

There are, in coronary disease, a great many interacting variables, ranging from irreversible anatomic changes in the vessel walls and in the heart itself to those of vasomotor influence. No one agent, no matter how effective it might be in any one particular, can cure coronary disease in every instance.

Jenner, Parry, and Allan Burns believed that angina pectoris depended on changes in the coronary arteries. In 1842, John Erichsen [23] showed that ligation of a coronary artery stopped the heart and that increasing the coronary flow strengthened the heartbeat. Dr. Marshall Hall,[24] in the same year, said that ossification of the coronary arteries was a common cause of angina pectoris and death. Nevertheless, it was difficult to convince many that deficiency in coronary flow was the basis of angina pectoris. If this were true, asked the dissenters, why did the symptoms come and go, as they so often did, and why was the health perfect between attacks? Why did eating, indigestion, flatulence, walking against the wind, or breathing cold air bring on attacks; and why did the attacks disappear in some patients? Why did not all patients show sclerosed arteries at autopsy? Why did some persons live to a very comfortable old age, with very hard arteries? For these reasons Laennec and Trousseau and many others after them called the attacks neuralgia. Hanfield Jones,[25] as late as 1870, and Anstie,[26] in 1871, included angina pectoris as a neuralgia in their respective texts. Austin Flint [27] considered it a neuralgia, and it is classified as such as late as the 1896 edition of his book.

Landois,[28] in 1866, postulated a reflex angina pectoris from visceral sources. Allbutt held that the theory of vasomotor angina was merely "an argumentative resource, first supplied, I think, by the ingenuity of von Neusser." He did not consider that coronary arteries were the basis of angina, and he was supported by many others among them Wenchebach and Vaquez. One would suppose that clinical observations combined with a little reflection would have suggested that vasomotor narrowing of the coronary arteries would cause the same symptoms as did anatomic narrowing and would have reconciled the discrepancies in the clinical picture. Experimental proof of a reflex decrease in coronary flow was supplied by the experiments of von Bergmann [29] and his associates in 1932. They showed that reflexes decreasing the coronary flow could be produced by distention of the stomach or the esophagus, and especially of the stomach at the hiatal orifice. This work has been repeated and confirmed by others, who showed that distention of the free abdominal cavity with air also caused a reflex decrease in coronary flow. These reflexes were abolished by vagal section or by atropine. Similar reflexes have been produced by distention of the gallbladder or of the cystic duct. These reflexes were also abolished by atropine. The results have been substantiated by clinical experiments, and we see the evidence daily in our offices and in our wards. It has also been shown that stimulation of the nasal mucous membrane by an irritating vapor or cold could decrease the coronary flow. Clinical experience confirms the laboratory experiments.

We can now see that the importance that Allbutt placed upon vagus stimulus was well deserved, even thoug misinterpreted. Two other contributions, which have no received the clinical attention they deserve, were mad by Rein [30] in 1931 and Greene [31] in 1936. Rein showe the presence of a constant vagal tone in the coronar arteries, explaining the effect of atropine on the coronar flow. Greene showed the vagus nerve to be the sole path way of efferent coronary vasoconstrictor fibers. Worker at the Banting Institute [32] showed that stimulation of th vagus nerve, either centrally by drugs or peripherally b electrical stimulation, caused degenerative changes i the heart muscle because of constricted coronary arteri and decreased blood flow to the heart muscle. The clini cal importance of this experiment lies not only in th vasoconstrictor effect of the vagus upon the corona arteries but in the effect of repeated episodes of decrease coronary flow in producing permanent degenerati changes in the heart muscle.

Treatment, in general, from the time of Brunto evolved very slowly. It has always been difficult for t physician to decide what the abnormal conditions a and which agents are necessary to meet those condition or, if treatment is not possible, to do nothing. Aft Brunton, the nitrites were used almost universally, ev by those who considered that they were treating a ca diac neuralgia. The articles of Askanazy and Breu received little attention, rational as they were. The i fluence of tradition continued strong, as it does toda After Huchard,[33] the iodides were used very generall Osler used them, but not so enthusiastically as Huchar Osler occasionally used colchicum and chloroform i halations for the relief of the paroxysms. In a later te he recommended theobromine. In his monograph angina pectoris, Mackenzie [34] wrote, "Digitalis and dru allied to it have long been recognized as having an effe upon the heart, but the more these drugs are studied, t clearer it becomes that it is only in *certain definite* con tions that they act, and their sphere of influence is ve limited." Gibson writes of digitalis, "It is not of co spicuous utility." Digitalis is still used widely in corona disease, more because of tradition than for definite in cations for its use. The survival of a patient after rece ing any medication is not necessarily an index of its beneficial influence. Allbutt, who was most scornful of the "coronarians," used the nitrites for the acute attack and used theobromine and atropine in routine treatments. He used atropine and plenty of it for the purpose of blocking any vagal inhibitory action upon the heart and avoiding the vagal cardiac standstill. It is difficult to see how he could read his own book and not feel certain of the influence of the coronaries in angina pectoris. Verdon,[35] who considered that the pain of angina pectoris had its origin in a hollow viscus whose wall was under tension, paid a great deal of attention to dietary habits, as did almost all of the authors. He was so concerned with the importance of gas that he recommended the use of a stomach tube and tauhgt his patients to belch. He also used the conventional remedies, including aspirin and atropine. Lewis [36] used nitrites for the acute attack, and then theobromine, ammonium bromide, or phenobarbital.

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[23] Erichsen, J. E.: *On the Influence of the Coronary Circulation on the Action of the Heart*, London M. Gaz. **30**: 561, 1842.

[24] Hall, M.: On the Mutual Relations Between Anatomy, Physiology, Pathology, and Therapeutics, and the Practice of Medicine; Being the Gulstonian Lectures for 1842, London, H. Baillière, 1842.

[25] Jones, C. H.: Studies on *Functional Nervous Disorders*, ed. 2, London, J. Churchill & Sons, 1870.

[26] Anstie, F. E.: Neuralgia and the Diseases that Resemble it, New York, The Macmillan Company, 1871.

[27] Flint, A.: *A Treatise on the Principles and Practice of Medicine: Designed for the Use of Practitioners and Students of Medicine*, ed. 7, Philadelphia, Lea Brothers & Co., 1894.

[28] Landois, L.: Der Symptomencomplex "Angina Pectoris" Physiologisch Analysiert, nebst Grundlinien einer rationellen Therapie, Correspondenz-Blatt der deutschen Gesellschaft für Psychiatrie und gerichtliche Psychologie **13**: 2, 1866.

[29] von Bergmann, G.: Das "epiphrenale Syndrom," seine Beziehung zur Angina Pectoris und zum Kardiospasmus, *Deutsche med. Wchnschr.* **58**: 605, 1932.

[30] Rein, H.: Die Physiologie der Herz-Kranz-Gefässe, Ztschr. f. Biol. **92**: 101; 115, 1931.

[31] Greene, C. W.: Analysis of the Relations of the Coronary Constrictor and Dilator Nerves in the Cervical Vagosympathetic of the Dog, Am. Heart J. **11**: 592, 1936.

[32] Hall, G. E.; Ettinger, E. H., and Banting, F. G.: An Experimental Production of Coronary Thrombosis and Myocardial Failure, Canad. M. A. J. **34**: 9, 1936. Ettinger, E. H.; Hall, G. E., and Banting, F. G.: Effect of Repeated and Prolonged Stimulation of the Vagus Nerve in the Dog, ibid. **35**: 27, 1936. Manning, G. W.; Hall, G. E., and Banting, F. G.: Vagus Stimulation and the Production of Myocardial Damage, ibid. **37**: 314, 1937.

[33] Huchard, H.: Maladies du Coeur et des vaisseaux, artério-sclérose, aortites, cardiopathies artérielles: Angines de poitrine, etc., Paris, O. Dorn, 1899, vol. 2.

[34] Mackenzie, J.: Angina Pectoris, London, Hodder & Stoughton, 1923.

Until our own century, coronary occlusion and temporary coronary insufficiency were not differentiated clinically. It was thought that the disproportion between coronary flow and myocardial needs might be due to actual occlusion, to too great demands upon anatomically narrowed vessels, to vessels constricted by vasospasm, or to a decrease in coronary flow due to a fall in systemic pressure. All through the history of coronary disease, it was evident from clinical and pathological studies that many cases of coronary occlusion were being diagnosed as angina pectoris. Beginning in the 1880's, some attempts at differentiation became apparent. In 1896 George Dock [37] published the reports of four autopsy cases of coronary occlusion due to thrombosis, in one of which the autopsy findings were anticipated during life. It seems strange that this report did not have more clinical influence than it did, but physicians then and now have a way of walking down the narrow path of their own preconceived convictions, looking neither to the right nor to the left, and not letting their eyes stray from the straight path before them. A glance at either side might often be of interest and show something worth stopping to examine more closely. Herrick's [38] article appeared in 1912, clearly differentiating coronary occlusion as a distinct entity. This article carried a tremendous impact upon clinical thought and practice, although the effect of the impact was slow. Someone once asked Newton how he had made his discoveries; his reply was, "by thinking of them." Harvey's work was based not so much upon his own experiments and those of others but upon rational reasoning concerning those experiments. The results did not come from laboratory glassware or animal experiments but from thoughtful consideration of the significance of what he already knew. This is true of the work of Herrick and before him, of Dock. Herrick himself had little to say regarding treatment and held gloomy views as to the future outlook of the patient. Lewis treated the pain symptomatically but was careful to prescribe two months of complete rest for the crippled heart.

The observations of Manning, McEachern, and Hall [39] showed a rational way to help decrease the mortality and the amount of residual damage. They showed that when a coronary artery is occluded, there is a reflex vasoconstriction of all the coronary arteries, decreasing the blood supply to all the heart muscle and, in consequence, decreasing the blood flow through the anastomosing vessels to the infarcted area. This reflex vasoconstriction was obviated by vagal section or atropine, and the mortality of the experimental animal was greatly reduced. LeRoy [40] repeated the work with similar results and lowered the experimental mortality still further by using a coronary vasodilator agent combined with atropine. Clinical treatment along similar lines has been found effective.

With the advent of anticoagulant therapy, advocated by Wright and others,[41] the mortality resulting from coronary thrombosis in the cases reported by them was materially reduced, as was the proportion of peripheral vascular accidents. There is no doubt as to the favorable effect of these drugs in cases of coronary thrombosis, but there is room for doubt as to just which property of these agents produced favorable effects. It is difficult to understand how any anticoagulant action could have an effect on an occlusion already present and firmly established or on the resultant established anemic infarct. There is no evidence that thrombi propagate. Viscosity is not altered. We do not know that there is any increase in the coagulability of the blood before the attack, even though there may be secondary effects. We do know that a large number of coronary occlusions are due not to a primary thrombosis but to subintimal hemorrhages, with, in many cases, a superimposed thrombus; however, these same anticoagulant agents do possess a vasodilator quality, which might offer a more valid reason for their favorable effect. This is especially true of bishydroxycoumarin (dicumarol®), which has a pronounced and prolonged vasodilator effect.

When an occlusion of a coronary artery occurs, with the resulting myocardial infarct, there is an immediate effort on the part of the body to restore the circulation in the anemic area. Any agent that will dilate the coronary vessels and increase their flow should increase the blood flow through the anastomosing vessels. This should help to meet the conditions imposed, especially if used after an initial dose of atropine, which relieves the reflex vasoconstrictor spasm. Barnum,[42] in a small but personally supervised series of 118 cases, using a coronary vasodilator drug that did not possess any anticoagulant action, had a low mortality rate and an equally low incidence of peripheral vascular accidents. The coronary vasodilator drug was used at once and administration was continued indefinitely. No other medication except

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35. Verdon, H. W.: Angina Pectoris, London, Bailliere, Tindall & Cox, 1920.
36. Lewis, T.: Diseases of the Heart Described for Practitioners and Students, New York, The Macmillan Company, 1933.
37. Doch, G.: Some Notes on Coronary Arteries, M. & Surg. Reporter, **75**: 1, 1896.
38. Herrick, J. B.: Clinical Features of Sudden Obstruction of the Coronary Arteries, J. A. M. A. **59**: 2015 (Dec. 7) 1912.
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41. Wright, I. S.; Marple, C. D., and Beck, B. F.: Anticoagulant Therapy of Coronary Thrombosis with Myocardial Infarction, J. A. M. A. **138**: 1074 (Dec. 11) 1948.
42. Barnum, D. R., and others: Coronary Thrombosis Treated with Xanthines: Experience from the Standpoint of Mortality and Incidence of Thromboembolic Complications, Quart. Bull. Northwestern Univ. M. School **24**: 6, 1950.

the atropine was used initially. Belladonna and phenobarbital were used later; a narcotic was given at first, if necessary, and oxygen for a short time, and, of course, bed rest. There was no other variable. This was a small series, but it is difficult to gather even such a small series in which some well-intentioned person has not introduced a variable of some kind at some time.

Hochrein [43] in 1937 wrote an article on the prevention of coronary occlusion, which has not received the attention it so well merits. He said that, while there are many cases of coronary occlusion with no antecedent history, there is a greater proportion of cases in which the previous history should lead one to suspect that at some time a coronary occlusion might occur. He speaks of emotional incidents as a precipitating cause and calls attention to the part that vascular spasm of the coronary arteries may play in the production of coronary occlusion.

A reduction in coronary flow due to various reflex causes has already been mentioned as well as its experimental confirmation. In reviewing the histories of cases of coronary occlusion, one frequently sees the same pattern of events that is found in cases of angina, the same incidence of the effects of fatigue and emotional disturbance, and the same background for reflex vasomotor incidents. Banting and his associates in their experiments produced intravascular thrombi in the coronary by vagus stimulation. Nalefski has produced infarcts of the heart muscle by the vasoconstrictor action of barium chloride, although no thrombi have been shown as yet.

If blood were so eager to clot that an anticoagulant was necessary, one might expect that the clotting would choose some nice, quiet, placid pool of venous blood instead of a very busy spot in the coronary artery. But, if the intima of a coronary artery were damaged this would predispose to the deposition of platelets in this area and the formation of a white and red thrombus, even in the presence of blood of normal or low coagulability. The walls of the vessels in coronary occlusion are usually already damaged, but a thrombus does not always occur in the most severely damaged vessels, and spasms may occur more readily in a less severely damaged vessel. A vasoconstrictor episode, by compressing the media and decreasing the blood supply to the intima, could readily cause intimal damage in an already damaged vessel wall. There is reason to think that it might also increase the wettability of a normal vessel wall, as in Banting's experiment.

There is yet much to be learned in regard to coronary disease, in part from the laboratory but largely from clinical observations over long periods of time, and in learning to use what we already know. To quote Dr. Dock in his 1895 article: "It must therefore remain for the physicians in general practice who have an oversight of patients over long periods and who at the same time have the same kind of scientific zeal that influenced a Jenner, to give the final touches to the picture of coronary disease."

104 S. Michigan Blvd.

43. Hochrein, M.: Können für die Entstehung des Myokardinfarktes verhüten, München. med. Wchnschr. 80: 1613, 1933. Der Myokardinfarkt: Erkinnung, Behandlung und Verhütung, Dresden und Leipzig, T. Steinkopff, 1937.

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# DETECTION AND TREATMENT OF NUTRITIVE FAILURE IN CHILDREN

## RECENT OBSERVATIONS

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The diagnostic term "nutritive failure" means the same to us whether applied to children or adults. This term perhaps means different things to different physicians. It is used in our clinic to describe a variable clinical picture and does not have a specific physiological connotation. It does not indicate why the nutrition has failed but simply that it has failed. The orderly process of growth can be retarded in many ways by inadequate or improper nutrition. To evaluate these effects, we need to know as much as possible about the growing process of the child.

The growth of the body goes on under our eyes every day. The phenomenon is extremely delicate; yet, because it is so familiar, we think little of it. How do we develop cell by cell from the food we eat, the water we drink, and the air we breathe? How is the plan for growth, which has been defined as an increase in size and cell complexity, carried out? At birth the infant is roly-poly, with short arms and legs, and with a big head and abdomen. Then there is a progressive alteration in form and proportion. The chest develops rapidly and the head slowly. Adolescence comes, and the body shoots up with great speed. Finally, the ossification of the bones is completed, and we have maturity. If all has gone well, the results are most gratifying. What regulates the relationship between the various body cells? Is it the ductless glands? Do the thyroid, the pituitary, and the gonads have a vote? Can they always agree? If the pituitary is overactive, the result will be a large, tall person with long arms and legs. If the thyroid is underactive, the result will be a short person with delicate arms and legs. The gonads, when hyperactive, seem to produce an abundance of hair, strong bones, and a deep voice. What tends to equalize these

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*This study was aided by grants from the* Birmingham Citizens Committee Fund, the American Dry Milk Institute, Inc., and the Armour Research Laboratories.

activators, and how does the right result come about? That has been one of our major problems in the Nutrition Clinic of the Hillman Hospital for many years. We have learned that there is an interrelationship between vitamins, minerals, amino acids, and hormones. This interrelationship is so delicate that it makes one very humble in his approach to this problem.

In many instances we do not know enough to prescribe properly. We do know enough to be certain that the average patient does not understand dietary advice when given loosely in such terms as "eat sufficient meat, eggs, fresh vegetables, and fruit." How can we advise the parent intelligently until we have more information?

### FOLIC ACID

The representative history given in case 1 shows a close physiological relationship between failure of hemopoiesis in the mother and failure of hemopoiesis in the nursing infant when they both are deficient in folic acid. Zuelzer[1] has shown that folic acid promotes hemopoiesis in infants with megaloblastic anemia. Angulo and one of us (T. D. S.)[2] have shown that the diets of patients with sprue and of some women with the macrocytic anemia associated with pregnancy were low in folic acid content. The latter (T.D.S.)[3] has described the close relationship between the macrocytic anemia of pregnancy and the anemia of infancy and early childhood and has pointed out that these anemias can be prevented by treatment of the mother in the late stages of pregnancy with substances like folic acid or foods containing adequate amounts of folic acid. In view of these facts, it follows that the pregnant woman should have ample folic acid in her diet or should be given synthetic folic acid or dried yeast, which contains folic acid, in order to prevent nutritional megaloblastic anemia in the mother and in the infant.

We have studied eight pregnant women who took mixed vitamin therapy under the impression that they were getting the vitamins they needed during pregnancy (unpublished observations). These vitamin preparations did not contain folic acid; since the diets of the women were low in folic acid, typical macrocytic anemia of pregnancy developed. It goes without saying that, if these patients had had sufficient synthetic folic acid and dried yeast, which contains folic acid, the anemia would not have developed.

Case 1.—C. G., a 27-year-old woman, and her 8-week-old female infant were brought to the hospital in an ambulance. For several days the mother had been in a semicomatose state, and the infant had been very ill. The husband became alarmed about their condition and brought them both to the hospital. From the husband, and later from his wife, the following history was obtained.

The infant was the fifth child, the oldest being 6 years of age. The other four children were somewhat underweight but seemed to be in good health. During the first four or five months of each pregnancy the mother lost her appetite, was nauseated, and frequently vomited. Because of nausea, she ate only small amounts of foods on which she had subsisted all her life—bread, cornmeal, rice, starchy vegetables, fats and sugars, and moderate amounts of fish and fruit. During these periods her diet rarely contained eggs, milk, or green vegetables. By the end of each pregnancy she had gained only a few pounds in body weight After the birth of each child, her appetite improved, she gained weight, and she felt fairly well until the next pregnancy.

The nausea, loss of appetite, and vomiting during this last pregnancy had been unusually severe. By the seventh month she was too weak to take care of her house and children and spent most of the time in bed. Severe burning and soreness of the tongue and diarrhea with frequent watery brown stools developed about six weeks before the birth of the child. Her husband had noticed that she was extremely pale.

A neighbor delivered the infant. Since delivery, the mother had not regained her appetite or her strength. She had not been able to do her housework or to take care of her children. For several days prior to her admission, she had been in bed and had seemed to be "out of her head." She had refused all foods except a small amount of milk and soup.

The infant weighed 5 lb. (2,268 gm.) at birth. Although the mother's supply of breast milk was scanty, feedings were given at frequent and irregular intervals during the day and night. The father said the infant had not been well since birth. She looked "like wax," cried when awake, and looked "like dead" when asleep.

Physical examination of the mother showed a pale, emaciated woman who appeared to be critically ill. She was too weak to sit up in bed. Her general pallor was striking. The skin, in addition to being pale, had a slightly yellowish tint. Her tongue was fiery red and smooth. The conjunctivas were pale and the scleras muddy.

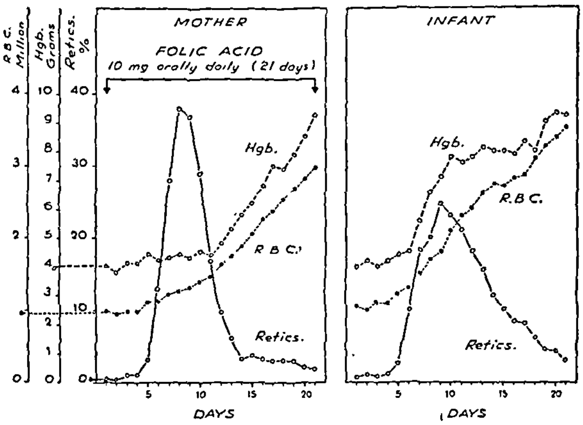

Fig. 1 (case 1).—Hemopoietic response of a mother with macrocytic anemia and her nursing infant with megaloblastic anemia, following administration of folic acid to the mother.

The infant was emaciated, pale, and weak. The buccal mucosa and the tip and border of the tongue were reddened. She was listless and appeared almost lifeless. Frequently she awakened, cried, and aroused the mother, who then tried to nurse her. Bowel movements were frequent and the stools liquid and brown.

Repeated gastric analyses showed free hydrochloric acid in the gastric juice of the mother. An oral glucose tolerance test showed a normal curve. The stools were watery and brown; they contained no ova, parasites, or blood. The peripheral blood findings on admission were as follows: red blood cells 990,000 and hemoglobin 4.0 gm. (26%), with 2% reticulocytes. The bone marrow showed characteristic megaloblastic arrest. The stools of the infant were watery and brown; they contained no ova, parasites, or blood. Her peripheral blood values were as follows: red blood cells 1,050,000 and hemoglobin 4.0 gm. (26%), with 0.6% reticulocytes. The respective diagnoses were macrocytic anemia of pregnancy and megaloblastic anemia of infancy.

After the base line studies were completed, the mother was given 10 mg. of folic acid orally daily for 21 days. As can be seen in figure 1, there was an excellent hemopoietic response.

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1. Zuelzer, W. W.: Folic Acid Therapy in Anemias of Infancy and Childhood, J. A. M. A. **131**: 7 (May 4) 1946.
2. Angulo, J. J., and Spies, T. D.: Determination of Folic Acid Content of Food Usually Consumed by Patients with Tropical Sprue, Am. J. Trop. Med. **27**: 317, 1947.
3. Spies, T. D.: Observations on Macrocytic Anemia Associated with Pregnancy, Surg., Gynec. & Obst. **89**: 76, 1949.

The reticulocytes reached a peak of 37.9% on the eighth day of therapy, and thereafter the red blood cell count and hemoglobin increased rapidly. When she was discharged, on the 21st day of therapy, her blood values were as follows: red blood cells 2,990,000 and hemoglobin 9.2 gm. (60%), with 1.8% reticulocytes. Although given no therapy, the nursing infant likewise had a striking hemopoietic response. The reticulocytes increased to 24.6% eight days after start of folic acid therapy for the mother. By the time the mother had had folic acid for 21 days the infant's blood values were as follows: red blood cells 3,510,000 and hemoglobin 9.2 gm. (60%), with 2.8% reticulocytes.

The clinical response in both the mother and in the infant was dramatic. Three days after therapy was initiated the mother sat up in bed, ate all the food on her trays, and began talking to other patients in the ward, whereas prior to therapy she lay quietly in bed, seemed disinterested in her surroundings, and refused all food except a little soup. The soreness of her tongue began to decrease on the third day of therapy, and from this time on her improvement was rapid. All soreness of the tongue disappeared by the fifth day, and she began eating tremendous amounts of food. Within a few days her supply of breast milk was abundant. The diarrhea began to subside on the sixth day of therapy, and by the eighth day the stools were normal. The fourth day of administration of folic acid to the mother, a definite improvement in the infant's condition was obvious. The redness of the buccal mucosa had faded, her skin was slightly pink, and she was less fretful. Her appetite increased, and, when the mother's supply of breast milk increased, the infant was put on a normal feeding schedule. The diarrhea disappeared after the mother had received folic acid for seven days. By the time the mother had been treated for three weeks, the infant had gained 23 oz. (652 gm.); her color was good, and, although small, she appeared to be normal and healthy.

When the mother and child were discharged from the hospital, the mother was instructed as to what foods she should eat and how the child should be fed. They returned at weekly intervals for follow-up studies. Six months after they were discharged the mother's peripheral blood values were as follows: red blood cells 4,260,000 and hemoglobin 13.2 gm. (85%), with 0.2% reticulocytes. The infant's blood values were as follows: red blood cells 4,100,000 and hemoglobin 11.8 gm., with 0.8% reticulocytes. The mother had gained 22 lb. (10 kg.), and both she and the child appeared to be in excellent health.

The family moved to another town, and we did not see the mother or child again for 12 months. At this time the child still appeared to be in perfect health, but the mother complained of weakness, diarrhea, and soreness of the mouth and tongue. She was in the fourth month of her sixth pregnancy. During the first month she said she had lost her appetite, and watery diarrhea, nausea, and occasional vomiting developed and persisted. She lost strength rapidly and had lost 12 lb. (5.4 kg.). Her peripheral blood values were as follows: red blood cells 2,100,000 and hemoglobin 6.9 gm. (44%), with 1.0% reticulocytes. She was admitted to the hospital and given 3 oz. (85 gm.) of dried yeast per day. Figure 2 shows the effect of the yeast supplement on the nutritive value of her diet. A prompt hemopoietic response followed this treatment. The reticulocytes reached a peak of 16% on the eighth day of therapy. Subsequently the red blood cells and hemoglobin increased, and by the 21st day of therapy the peripheral blood values were as follows: red blood cells 3,410,000 and hemoglobin 10.6 gm. (69%), with 1.8% reticulocytes. The glossitis, diarrhea, nausea, and vomiting promptly disappeared. Her appetite increased, and by the time she was discharged, after three weeks of treatment, she had gained 15 lb. (6.8 kg.).

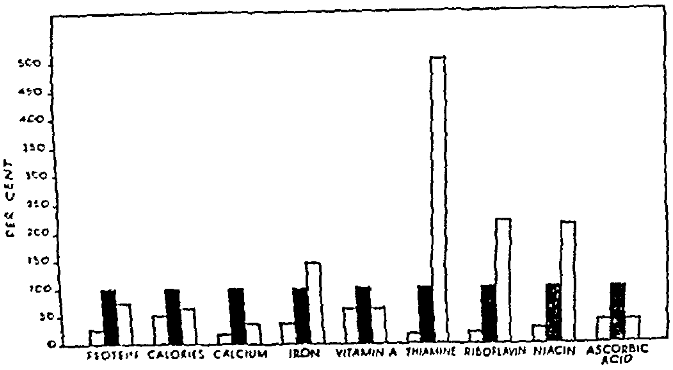

Fig. 2 (case 1).—Comparison of nutrients supplied by diet of patient with macrocytic anemia of pregnancy with (dotted areas) and without (areas with diagonal lines) dried yeast and recommended allowances (black areas). (Allowances recommended by the Council on *Foods and Nutrition*, National Research Council. The level for folic acid has not yet been determined.) The patient's diet was almost devoid of folic acid by analysis.

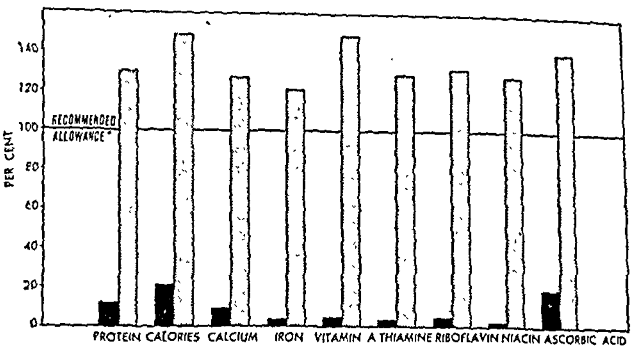

Fig. 3 (case 2).—Intake of nutrients before (black *areas*) *and after* (areas with diagonal lines) corticotropin therapy of leukemia in a 3½-year-old child. (*Recommended by the Council on Foods and Nutrition, National Research Council.)

When she was discharged, a maintenance dose of 1 oz. (28 gm.) of dried yeast daily was prescribed. Since she lived too far away to make frequent trips in for follow-up studies, she was asked to write us in regard to her condition. Twelve months later she wrote to say that she had given birth to a 9 lb. (4,082 gm.) infant and that both she and the child were well. Ten months later she returned for blood studies and brought the two youngest children. She and both children appeared to be in excellent health. The blood values of both children were normal for their ages, and mother's blood values were as follows: red blood cells 4,370,000 and hemoglobin 13.6 gm. (88%), with 1.0% reticulocytes.

## CORTISONE AND CORTICOTROPIN (ACTH)

The effects of cortisone and corticotropin are so broad that no satisfactory understanding of their action has yet been described. It would be presumptuous to assume that we could, in this comparatively brief paper, give a necessary comprehensive clinical review or even stress the most intriguing theories involving their physiological or biochemical action. Because we have worked for many years in the field of nutrition and because these substances have physiological effects associated with the science of nutrition, it seems fitting that we point out how the food intake is greatly augmented after the administration of these substances to a child with an acute disease. Many tissues of the body exhibit great sensitivity to these hormones. Exogenous cortisone and corticotropin have already been shown to have therapeutic application in diseases arising in many tissues. The present communication is concerned solely with those diseases affecting children and is based on our experience in treating children with rheumatoid arthritis, rheumatic fever, psoriasis, lupus erythematosus, various allergies, pemphigus, inflammatory eye disease, acute leukemia, and adrenal cortical hypofunction. Corticotropin is a specific stimulant for the adrenal cortex and initiates the formation of a number of corticoids by the glands. Physiological agents such as cortisone and compound F are vitally concerned with the mobilization and utilization of energy and with the well-being of the cells of the body, with the result that they prevent or reverse the adverse reactions produced by a wide variety of diseases. It is not the purpose of this communication to report the specific effects of these hormones on the symptoms as such. We are concerned with the vital change in the patient that causes him to improve clinically and to show a tremendous interest in food. The example chosen is a patient with leukemia. Not all patients with acute leukemia show initial, or for that matter any, benefit.[4] In all our cases the treatment has failed to save life. When treatment has been interrupted, a relapse has occurred; in our experience, such treatment has never produced a full remission. Repeated examinations of the peripheral blood and of the bone marrow always show that the disease still exists. This is illustrated in case 2.

Case 2.—A. F., a 3½-year-old child, had been well until three months prior to his admission, when a sore throat, swollen glands in the neck, and temperature of 38 to 39 C (100.4 to 102.2 F) developed. He was given various antibiotics, but the sore throat was not relieved, the glands in his neck remained swollen, and his temperature did not return to normal. Soon after the onset of the illness, he lost his appetite, lost weight, and began having severe pains in his legs. A month prior to his admission, purpuric spots appeared on his elbows, knees, and thighs.

Physical examination on admission showed an extremely pale child who appeared weak and very ill. He rarely opened his eyes or responded when spoken to and moaned and cried almost constantly. The glands in his neck and groin were enlarged. There was no enlargement of the spleen. The liver was one fingerbreadth below the costal margin.

The peripheral blood values were as follows: red blood cells 2,990,000, white blood cells 12,300, hemoglobin 7.5 gm. (48%), and no reticulocytes. The differential count showed 4 polymorphonuclear leukocytes, 1 myelocyte, 1 staff cell, 1 basophil, 2 eosinophils, and 91 lymphocytes. The erythrocyte sedimentation rate was 44 mm. per hour.

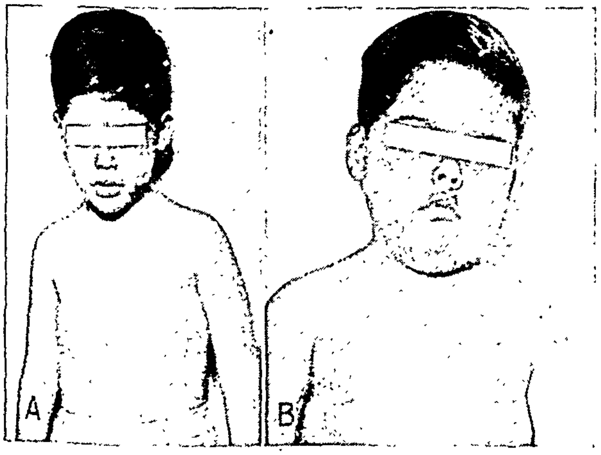

Fig. 4 (case 2).—Before (*A*) and after (*B*) the appearance of "moon face" in a 3½-year-old boy treated with corticotropin.

After the base line studies were completed, corticotropin, in doses varying in size from 10 to 20 mg., was administered intramuscularly four times daily. A sudden and tremendous increase in appetite occurred on the third day of corticotropin therapy. The patient ate all the food offered him at mealtime, asked for additional servings, and requested foods at frequent intervals between meals, whereas he had been taking only small amounts of ice cream, milk, and fruit juice (fig. 3). On the fourth day he sat up in bed, began to take an interest in his surroundings, and played a little. Two days later the pain in his legs was relieved; he got out of bed and began playing around the ward. After a week of corticotropin therapy, the pain and inflammation of the joints disappeared, and the purpuric spots began to fade; two days later they had disappeared. By this time his temperature was normal, the glands in his neck and groin had decreased 50% in size, and he appeared and behaved like a normal, healthy child. In the period of 10 weeks he was given a total of 2,370 mg. of corticotropin; during this time he continued to have a tremendous appetite and a great increase in body weight. Since he exhibited the characteristic "moon face" (fig. 4) that has been attributed to excess intake of corticotropin, he was given no treatment of any kind for one week. Corticotropin was then administered in a dosage of 30 mg. daily. After a week treatment was discontinued. Clinically the patient remained well for five weeks; then he began to relapse. He lost his appetite and vomited frequently, and petechiae appeared over his whole body. He began having pain in his legs and temperature of 38 to 39.5 C (100.4 to 103.1 F), and the glands in his neck and groin began to increase in size. He was given a total of 1,125 mg. of cortisone acetate intramuscularly over a period of 12 days, but there was no change in his condition. He then was given 40 mg. of corticotropin intramuscularly daily for 10 days. After two days there was moderate clinical improvement. His appetite increased, and he appeared more alert. This improvement lasted only two days; then his condition quickly grew worse. Bleeding from the gums began, and severe tachycardia developed; he died four days later.

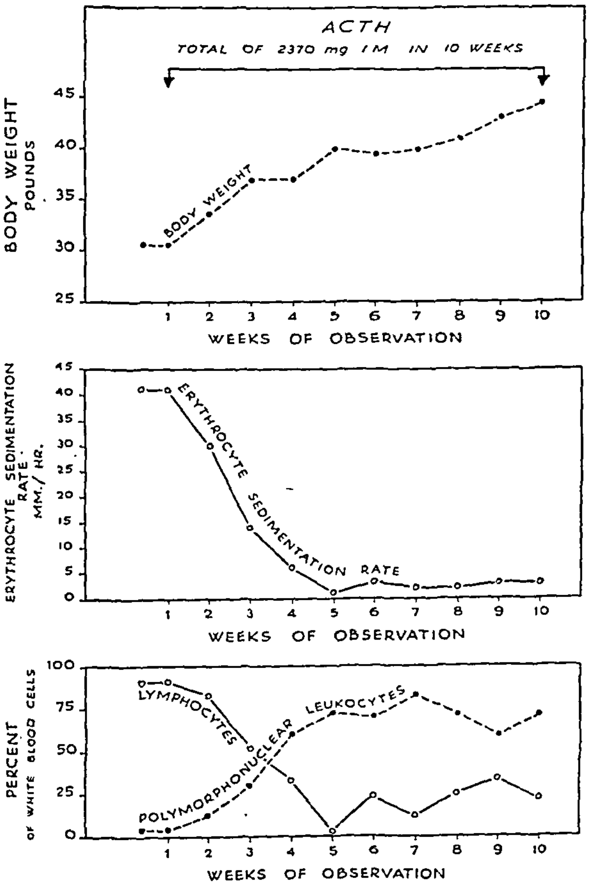

Fig. 5 (case 2).—Effect of corticotropin therapy on certain blood values and on body weight in a child with acute leukemia.

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4. Pearson, O. H., and others: ACTH- and Cortisone-Induced Regression of Lymphoid Tumors in Man: A Preliminary Report, Cancer 2: 943, 1949. Farber, S., and others: The Effect of ACTH in Acute Leukemia in Childhood, Proceedings of the First Clinical ACTH Conference, Philadelphia, Blakiston, 1950, p. 328. Dameshek, W.; Saunders, R. H., Jr., and Zannos, L.: The Use of ACTH in the Treatment of Acute and Subacute Leukemia, Bull. New England M. Center 12: 11, 1950. Stickney, J. M.; Heck, F. J., and Watkins, C. H.: Cortisone and ACTH in Management of Leukemia and Lymphoblastoma, Proc. Staff Meet., Mayo Clin. 25: 488, 1950. Spies, T. D., and others: Response to Adrenocorticotropic Hormone and Cortisone in Persons with Carcinoma, Leukemia and Lymphosarcoma, Lancet 2: 241, 1950. Suzman, M. M.; Goldberg, B., and Hirsch, H.: Cortisone in Acute Lymphoblastic Leukemia, Lancet 1: 760, 1951.

This case shows that, in certain selected patients with acute lymphoblastic leukemia, the administration of corticotropin or cortisone acetate is followed by general improvement characterized by a great increase in the amount of food ingested, gain in body weight, and decrease in erythrocyte sedimentation rate and in hemorrhagic manifestations of leukemia. In the peripheral blood, the red blood cells, hemoglobin, and polymorphonuclear leukocytes increase and the lymphocytes decrease (fig. 5). A large number of megaloblasts appear in the bone marrow. At no time, however, is the bone marrow or the peripheral blood devoid of leukemic cells.

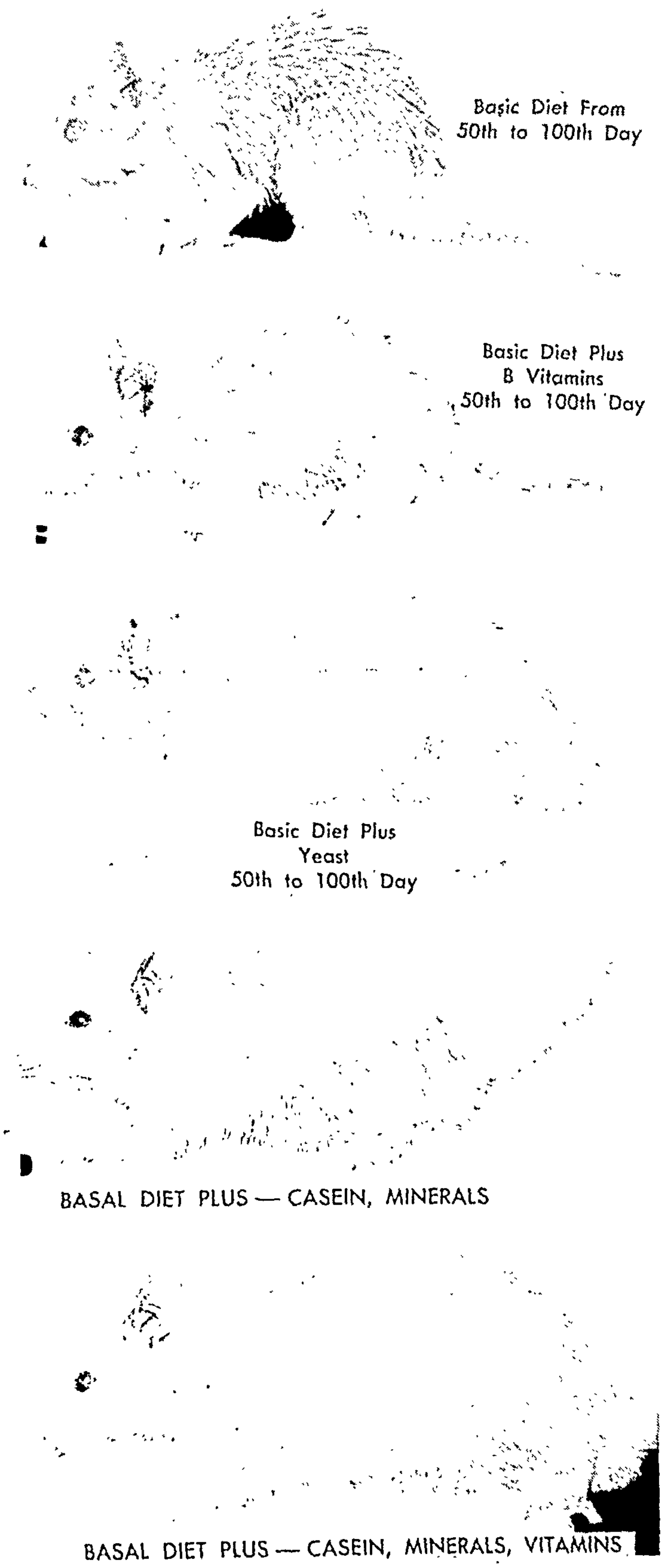

Fig. 6 (case 3).—All the rats were given the stock diet for 50 days; then they were given the test diet plus various supplements for the next 50 days, with the results shown above.

GROWTH-PROMOTING FACTORS

It is obvious that many dietary elements have specific functions relating to the growth of a child and to the maintenance of his health and well-being. For 15 years we have been studying the effects of chronic malnutrition on adults and children attending our clinic. In varying degrees the children are underweight and underdeveloped for their ages. After the administration of proper vitamins, such as riboflavin, nicotinamide, and thiamine hydrochloride, their appetites and weights usually increase. It must be stressed that this increase in appetite and weight gradually levels off unless the diets are improved. To improve these diets, dried yeast, casein, or dry milk solids are often added.

In many instances, however, the superficial and more obvious manifestations of growth failure induced by chronic malnutrition may be obscured by the intensity of the inherent growth-promoting factors operating within the child. Case 3 has been selected to show how the general outward appearance may often be deceiving in determining the extent of growth failure in a child consuming a diet shown by biologic assay to be deficient in the quantities and proportions of essential nutrients required for optimal growth. This case also shows that the nutritional requirements for repair and for maintenance are often not as exacting as they are for growth. When we first saw the child described in the following report, his general body structure, height, and weight were not particularly abnormal for his age. As we studied him for a period of 80 months, many interesting features of his nutritive and growth failure made their appearance as can be seen from his case history.

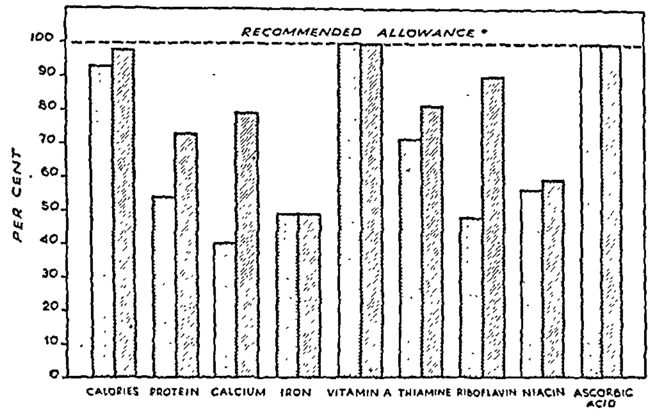

Fig. 7 (case 3).—Effect of supplement of nonfat, dry milk solids on nutritive value of diet of E. T. The dotted areas indicate the average daily intake of nutrients without the milk supplement; the cross hatched areas indicate the average daily intake of nutrients with the milk supplement. (*Recommended by the Council on Foods and Nutrition, National Research Council.)

Case 3.—E. T., a 12-year-old white boy, was first seen by us when he was 5 years of age. He is the fourth child in a family of 10 children ranging in age from 1 to 16 years.

He weighed 11¾ lb. (5,330 gm.) at birth, cut his first tooth at 7 months of age, sat alone at 10 months, and walked and talked at 12 months. He was breast-fed until he was 15 months old. He was then given the same foods as the rest of his family. The diet consisted chiefly of cornbread, biscuit, fat pork, sugar, and, occasionally, turnip greens, corn, tomatoes, and berries in season.

Rarely did he receive any milk, eggs, meat, fish, or cheese. To determine the growth-promoting capacity of this diet it was scaled down to the rat level and fed to a group of young animals. We could not ascertain precisely the small amounts of berries and vegetables that the child occasionally ate, so we did not incorporate such materials into the diets of the rats. The basic foods in the diet of the rats were present in the same relative proportion as in the diet of the child. We prepared the diet for the rats by adding a small amount of water, heating the mixture slowly until it was dry, and then grinding it into small pieces in a food chopper.

Sixty male rats, 50 days of age, were divided arbitrarily into five groups of 12 each. For 50 days each rat was given the basic diet eaten by the child. During this period, 12 rats received only the basic diet and water; 12 received the basic diet and water plus daily supplements of thiamine hydrochloride, nicotinic acid, riboflavin, pyridoxine, pantothenic acid, choline, and inositol; 12 received the basic diet and water plus 1.5 gm. of dried yeast daily; 12 received the basic diet and water plus casein and a mineral mixture daily; and 12 received the basic diet and water plus daily supplements of casein, a mineral mixture, and the synthetic vitamins mentioned above. Figure 6 shows a representative rat from each group. As can be seen, the rats receiving only the basic diet and water were small in size and emaciated in appearance and had soft and flabby muscles. The rats receiving the supplement of synthetic vitamins grew to a larger size and appeared healthier than those on the basic diet alone. The rats receiving the dried brewers' yeast powder appeared considerably healthier than either the group receiving the basic diet alone or the group receiving the basic diet plus the synthetic vitamins. The rats receiving casein and minerals appeared larger and stronger than those receiving the basic diet alone, but only those rats receiving the casein, minerals, and vitamins appeared to be normal in size and health. Certainly one is justified in concluding that the diet eaten by this child is inadequate for the proper growth and nutrition of young rats and that synthetic vitamins alone were not as effective in promoting growth as was the addition of dried yeast or a supplement of casein, minerals and vitamins.

Physical examination of the child when he was 5 years of age showed him to be fairly well developed. He had bilateral cheilosis, glossitis of pellagra, and marked injection of the conjunctivas and scleras. His mother said that he had had "cracks" at the corners of his mouth most of his life and that frequently his tongue was sore and red.

During the following three years, active bilateral cheilosis and glossitis were present much of the time. His mother complained that he was "fractious." His teacher stated that he did not concentrate, that his grades were poor, and that he was "quarrelsome." After a period of observation of three years and nine months, he was given a dietary supplement of dry, nonfat milk solids equivalent to 3 qt. (3 liters) of skimmed milk a week by methods already described.[5] The effect of this supplement on the nutritive value of his diet is shown in figure 7.

The growth progress of this child as measured by the Wetzel grid technique is shown in figure 8. At 5 years of age he had attained developmental level 25, had a physique rating of "stocky," and was proceeding on a fast auxodrome. His developmental age (Wetzel) was 5 years 10 months. In the three years and nine months of observation he progressed at an over-all rate of approximately one developmental level per month. His physique rating changed from "stocky" to "good." There was no corresponding persistent auxodromal lag, thus indicating that he was increasing in stature at a proportionately faster rate than he was increasing in weight. His grid curves were characterized by recurrent periods of retarded growth followed by periods of recovery. These followed a definite seasonal pattern; growth retardation being observed each summer, recovery each fall and winter. Similar manifestations were observed in the growth curves of each of his six brothers and two sisters, who received the same general diet and each of whom has had cheilosis. On several occasions the brothers and sisters have been given either synthetic riboflavin or dried yeast, as a result of which their symptoms were ameliorated. After the administration of these materials was discontinued, the cheilosis gradually reappeared. In each child, the lesions were worse in the summer than at any other season of the year.

The milk supplement was started when the child was 8 years 9 months of age. In the 35 months since he has been receiving the supplement, he has maintained essentially the same general grid pattern established during the presupplementation period. During the first year in which he was given the milk supplement, little change was noted in his cheilosis, glossitis, disposition, or school grades. In the past year there has been a gradual improvement in the lip and tongue symptoms. His mother says that his disposition has improved greatly. His teachers say that he can concentrate better on his studies, that his school grades have improved, and that his behavior is excellent.

It is apparent that the comparatively small amount of milk given as a dietary supplement failed to increase the growth rate of this child over and above that noted during the presupplementation period. The addition of the dietary supplement served, however, to maintain the fairly rapid rate of growth characteristic of this child in the face of increasing requirements corresponding with an increase in age. Analysis of the nutrient value of his basic diet and the failure of this diet to support the growth of young rats suggests that the growth rate of this child, while admittedly rapid, was still below optimal. The gradual diminution of severity and duration of the anatomic lesions indicative of the nutritional deficiency state suggests that the nutritional requirements for repair and maintenance in this child were not as exacting as those for optimal growth.

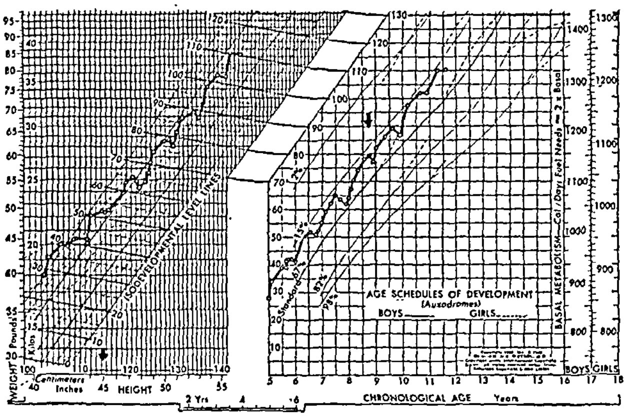

Fig. 8 (case 3).—Growth progress of E. T. as measured by the Wetzel grid technique. The arrow indicates the point at which the milk study began.

## COMMENT

The delicate interrelationship of the various nutritional, hormonal, and hereditary factors is gradually unfolding. From the beginning, it has been obvious that hereditary factors, various diseases, nutrition, and many other conditions determine the course of physical growth and development. Certainly the relative importance of each has not been determined and perhaps varies from child to child and from time to time. The effect on the infant of improper nutrition in the mother is shown in case 1. In this case it is shown that folic acid is a nutrient having a specific function in the well-being and health of the infant. Case 2 shows in a most dramatic way how the administration of corticotropin (ACTH) to a child with a lethal condition, namely, leukemia, is followed by a tremendous increase in appetite, with result that the child eats voraciously and rapidly increases his body weight. Case 3 is an example of many children we have studied with an erratic growth pattern whose diets have been high in carbohydrates and fats and low in proteins, minerals, and vitamins. This case illustrates the principle that the effects of prolonged nutritive failure on the growth progress of a child may often be subtle and devious and marked by a high degree of individual variation; detection of these effects may require extensive study.

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[5] Mann, A. W.; Dreizen, S.; Pyle, S. I., and Spies, T. D.: The Red Graph and the Wetzel Grid as Methods of Determining the Symmetry of Status and Progress During Growth, J. Pediat. 32: 137, 1948. Spies, T. D., and Dreizen, S.: Effect of Milk Supplements on Growth of Children with Nutritive Failure, ibid. 34: 393, 1949. Dreizen, S.; Currie, C.; Gilley, E. J., and Spies, T. D.: The Effect of Milk Supplements on Growth of Children with Nutritive Failure: Height and Weight Changes, Growth 14: 189, 1950.

The seasonal occurrence of episodes of retarded growth in children with chronic nutritive failure corresponds to the same periods of the year when the children and their parents have clinical manifestations of nutritional deficiency diseases. In a series of 41 children, we found that the addition of a weekly supplement of 6 qt. (6 liters) of milk (twice the amount given the child in case 3) for 20 months produced an increase in the rate of growth in 73%, an increase in the speed of development in 54%, an improvement in the direction of development in 34%, and an improvement in the quality of growth in 27%. We have also demonstrated that the children receiving the milk supplements gained an average of 1.23 cm. in height and 1.35 kg. in weight over and above the gains made by the children not receiving the supplements during the 20-month period. These values were equal to 11.8% and 22.1% of the respective mean height and weight gains made by the children receiving the added milk during the supplementation phase of the study. These findings illustrate that the retarding effects of prolonged nutritive failure on the growth progress of children are, to a large extent, reversible, provided that the dietary therapy is ample enough to overcome the accumulated deficiencies of many years' standing.

Such observations as those reported here, along with the studies being done in many other places, will eventually bring much valuable information. The young science of nutrition will then be able to recommend more comprehensive principles, which, when judiciously applied, will produce even more gratifying results in this field.

620 S. 20th St. (Dr. Spies)

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# LIMITATIONS OF SYMPATHECTOMY IN TREATMENT OF DIASTOLIC HYPERTENSION

*Geza de Takats, M.D., Chicago*

Essential hypertension is a progressive disease that is usually discovered by the general practitioner or at pre-employment, insurance, or preinduction examinations. Obviously the majority of patients with hypertension do not need operation, but early intensive study is imperative, since a decision to operate may well depend on the discovery of progressive vascular disease in the cerebral, retinal, cardiac, renal, and peripheral vascular areas.

The purpose of this paper is to present some tentative conclusions about when to operate, what type of operation to do, and how to interpret results in patients who have diastolic hypertension. Excluded from this discussion are patients with well-defined causes of hypertension, such as coarctation of the aorta, unilateral renal disease, pheochromocytoma, corticoadrenal tumors, and the full-blown Cushing's syndrome. This leaves a large number of patients affected by a hypertensive cardiorenal disease, for which a variety of etiologic factors, classifications, and methods of management have been proposed. Up-to-date information on trends of experimental investigation and clinical studies may be found in the transactions of recent symposiums.[1]

Since 1943 562 patients have been operated on by our group in three institutions.[2] Reports on these operations have been published from time to time [3] and will be referred to only when they apply to the problem at hand. Not only does the patient material vary from institution to institution or even within the same institution from year to year but so does the classification of patients, their study, and the evaluation of results. Expertly analyzed statistics may help to minimize some of the variables but they often obscure the individual prognoses. For this reason from the patients operated on during 17 years, a group of 55 who were operated on in 1946 with varying indications, technique, and five year follow-up are considered here. The pilot study has confirmed the originally expressed conservatism in advising operation only in rigidly defined cases and rejecting patients in whom operation has seemed either unnecessary or futile.

## OBJECT OF PREOPERATIVE STUDY

Elsewhere [4] the work-up of hypertensive patients has been outlined, and only the summary sheet is presented here (fig. 1). The object of such a study is to estimate the emotional and the regional vascular status of the hypertensive person and to evaluate the importance of neurogenic, endocrine, and renal factors in each case. Such a viewpoint is based on the assumption that human

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The cooperation of Drs. George W. Scupham, Richard C. Gamble, and James C. Clark, and Mrs. Loraine Ade Hanlon made this long-range study possible.

[1] (*a*) Bell, E. T., editor: Hypertension, Minneapolis, University of Minnesota Press, 1951. (*b*) Wolff, H. G.: Life Stress and Bodily Disease—Formulation, A. Res. Nerv. & Ment. Dis. Proc. **29**: 1059, 1950. (*c*) Conference on Factors Regulating Blood Pressure, Transactions of the 1st to 3rd Conferences, New York, Josiah Macy, Jr., Foundation, 1947 to 1949.

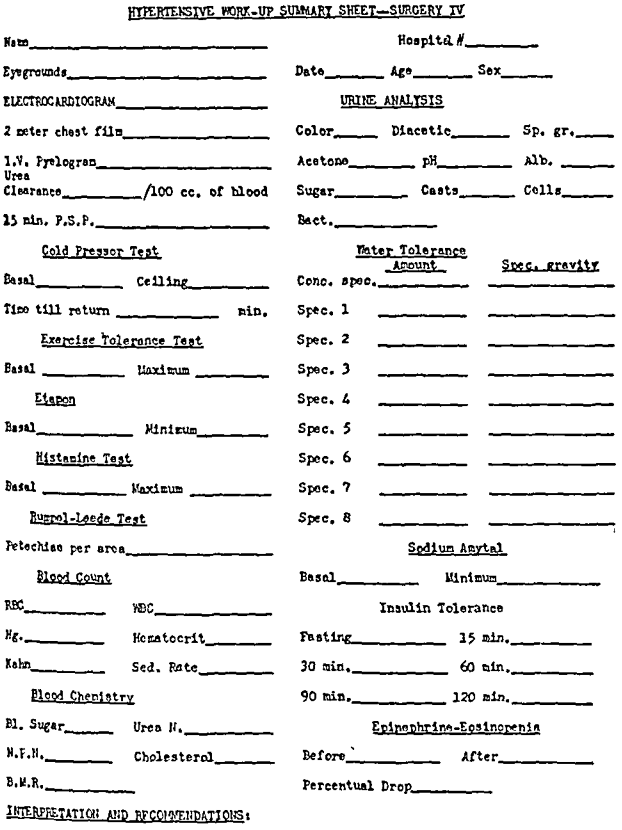
[2] St. Luke's Hospital and the Research and Educational Hospitals, University of Illinois, Chicago, and the Veteran's Administration Hospital, Hines, Ill.

[3] (*a*) de Takats, G.; Heyer, H. E., and Keeton, R. W.: Surgical Approach to Hypertension, J. A. M. A. **118**: 501 (Feb. 14) 1942. (*b*) de Takats, G.; Graupner, G. W.; Fowler, E. F., and Jensik, R. J.: Surgical Approach to Hypertension: Second Report, Arch. Surg. **53**: 111 (Aug.) 1946. (*c*) de Takats, G., and Fowler, E. F.: Surgical Treatment of Hypertension: Neurogenic Versus Renal Hypertension from Standpoint of Operability, Surgery **21**: 773, 1947. (*d*) de Takats, G.; Julian, O. C., and Fowler, E. F.: Surgical Treatment of Hypertension, ibid. **24**: 469, 1948.

[4] de Takats, G.: Selection of Hypertensive Patients for Sympathectomy, Chicago M. Soc. Bull. **53**: 797, 1951.

essential hypertension is probably not the equivalent of any of the experimental hypertensions produced through neurogenic, corticoadrenal, or renal mechanisms, but that these well-defined experimental procedures simply illustrate the mechanisms whereby arteriolar tone in the human can be raised. For example, an emotional stress originating from the cerebral cortex may operate through all three mechanisms and no doubt does, since hypothalamic stimulation will activate the sympathetics, mobilize corticoadrenal secretion through the mediation of the anterior pituitary, and demonstrably decrease renal blood flow.[1b] On the other hand, irreversible regional vascular damage in the kidney will produce all the known characteristics of experimental renal hypertension, but a neurogenic and adrenocortical factor may both be demonstrable. For this reason interpretation of the hypertensive study depends on clinical measurement of these three mechanisms.

The psychogenic factor is screened by an interview with a psychiatric social service worker, who in an hour or so takes the life history of the patient. As a result of such an interview the patient may have to be deferred from an operation even though he would otherwise be eminently suitable. After establishment of the proper physician-patient relationship,[5] the patient may become a suitable candidate for operation. Clinical evaluation of this factor is just as important as the study of the eyegrounds or the concentration-dilution test. Ignoring this factor is a potent cause of failure of the surgical treatment.[6] It has not been the experience of our group that psychoanalytic treatment effectively and permanently lowers blood pressure, even in young persons with labile blood pressures and little if any organic vascular damage.[3c] However, by better adjustment to their environment patients treated psychoanalytically may become useful members of society and, should operation be otherwise indicated, this stress may be borne without further insult to their emotional state.



HYPERTENSIVE WORK-UP SUMMARY SHEET—SURGERY IV

Name ______ Hospital # ______
Eyegrounds ______ Date ______ Age ______ Sex ______
ELECTROCARDIOGRAM ______ URINE ANALYSIS
2 meter chest film ______ Color ______ Diacetic ______ Sp. gr. ______
I.V. Pyelogram ______ Acetone ______ pH ______ Alb. ______
Urea Clearance ______/100 cc. of blood Sugar ______ Casts ______ Cells ______
15 min. P.S.P. ______ Bact. ______

Cold Pressor Test
Basal ______ Ceiling ______
Time till return ______ min.

Exercise Tolerance Test
Basal ______ Maximum ______

Etamon
Basal ______ Minimum ______

Histamine Test
Basal ______ Maximum ______

Rumpel-Leede Test
Petechiae per area ______

Blood Count
RBC ______ WBC ______
Hg. ______ Hematocrit ______
Kahn ______ Sed. Rate ______

Blood Chemistry
Bl. Sugar ______ Urea N. ______
N.P.N. ______ Cholesterol ______
B.M.R. ______

Water Tolerance

| | Amount | Spec. gravity |
|---|---|---|
| Conc. spec. | | |
| Spec. 1 | | |
| Spec. 2 | | |
| Spec. 3 | | |
| Spec. 4 | | |
| Spec. 5 | | |
| Spec. 6 | | |
| Spec. 7 | | |
| Spec. 8 | | |

Sodium Amytal
Basal ______ Minimum ______

Insulin Tolerance
Fasting ______ 15 min. ______
30 min. ______ 60 min. ______
90 min. ______ 120 min. ______

Epinephrine-Eosinopenia
Before ______ After ______
Percentual Drop ______

INTERPRETATION AND RECOMMENDATIONS:

Fig. 1.—Summary sheet of hypertensive work-up.

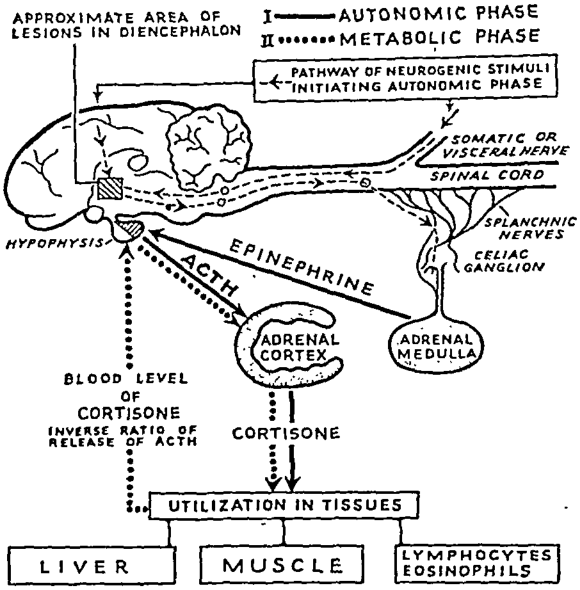


Fig. 2.—Proposed explanation of control of the secretion of adrenal cortical steroids. The diencephalon is activated by neurogenic stimuli from the cortex and by peripheral somatic or visceral afferent impulses which release epinephrine from the adrenal medulla. Epinephrine in turn mobilizes corticotropin (ACTH) from the anterior pituitary gland, which activates the adrenal cortex to secrete cortisone. This is the first autonomic phase. In the second metabolic phase corticotropin production is stimulated by the increased rate of utilization of cortisone. (McDermott, W. V.; Fry, E. G.; Brobeck, J. R., and Long, C. N. H.: Mechanism of Control of Adrenocorticotrophic hormone, Yale J. of Biol. & Med. **23**: 52, 1950.)

*Regional Vascular Damage.*—The grouping of patients with essential hypertension into four groups, based primarily on changes in eyegrounds but correlated with vascular damage elsewhere, is the contribution of Keith, Wagener, and Barker,[7] and no additional modification or subdivision has really improved it. While it is common clinical experience that the vascular damage in the eyegrounds does not parallel the vascular damage in other areas, notably in the brain and kidney and while transitional cases will always be encountered, this classification and particularly the correlated mortality and survival rates have served as a basis for comparison of operative results by which surgeons have showed that the operation favorably influences the survival rate.[8] Hypertensive encephalopathy, papilledema, cardiac decompensation, and severe angina with and without coronary thrombosis, to mention the advanced forms of regional vascular damage, have not been regarded as contraindications to sympathectomy. On the contrary, when done long

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5. Ferris, F. B., and others: Life Situations, Emotions and Course of Patients with Arterial Hypertension, A. Res. Nerv. & Ment. Dis., Proc. **29**: 870, 1950.

6. de Takats, G.: Causes of Failure in Surgical Treatment of Hypertension, Angiology **1**: 547, 1950.

7. Keith, N. M.; Wagener, H. P., and Barker, N. W.: Some Different Types of Essential Hypertension: Their Course and Prognosis, Am. J. M. Sc. **197**: 332, 1939.

8. Peet, M. M., and Isberg, E. M.: Surgical Treatment of Essential Hypertension, J. A. M. A. **130**: 467 (Feb. 23) 1946. Smithwick, R. H.: Symposium on Recent Advances in Surgical Physiology: Surgical Physiology of Hypertension, S. Clin. North America **29**: 1699, 1949.

enough after the acute episode such decompensation has been regarded as an indication to prolong the patient's life and improve his vascular status. In essential hypertension when renal vascular damage is based predominantly on a fixed renal mechanism, the renal vascular condition has not been seen to respond to sympathectomy.

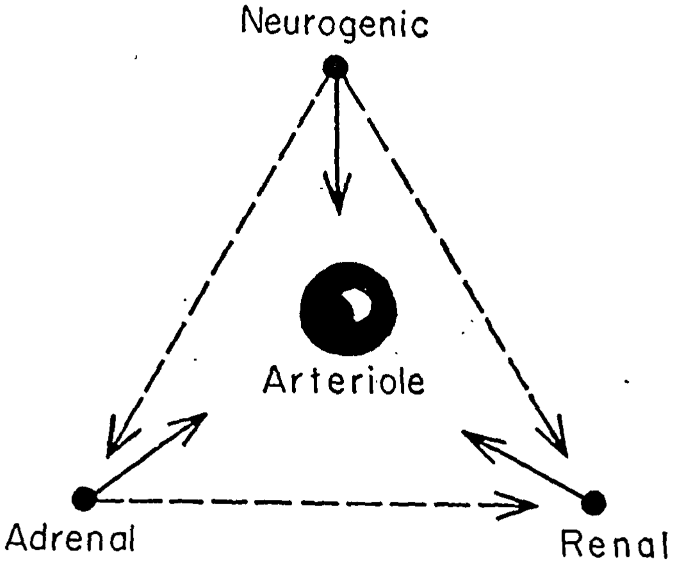

Fig. 3.—Mechanisms in the production of human essential hypertension. The neurogenic factor influences both other factors; the adrenal factor influences the renal one; whether the renal factor sensitizes the vessels to neurogenic hyper-reactivity is under debate. A combination of all these mechanisms is present in human essential hypertension.

The underlying vascular damage in hypertension is hyperplastic arteriolar sclerosis, which may be complicated later by atheromatosis. This arteriolar sclerosis is the result and not the cause of hypertension.[9] Pure arteriosclerotic hypertension, characterized by a rigid, atheromatous, and often calcified aorta, a high pulse pressure with a comparatively low diastolic pressure and a poor depressor mechanism in response to emotional, exertional and cold stimuli, has never been regarded as an indication for surgical intervention, although it is no doubt included in compilation of some mass statistics.

## DETECTION OF THE THREE FACTORS THAT MAINTAIN HYPERTENSION

*The Neurogenic Mechanism.*—The single short painful cold stimulus of Hines [10] is the unsurpassed measure of vascular reactivity and, if determined in a basal state, reflects the vascular temperament of a person from birth to grave. As shown by the study of Reiser and Ferris,[11] even this short single stimulus may evoke a humoral response that cannot be abolished by tetraethyl ammonium chloride (TEAC). Since this substance acts at the ganglionic synapse, its effect on resting blood pressure is a better measure of neurogenic tone than the effect of barbiturates, which act on the hypothalamus. In the present series both drugs have been used, and a statistical correlation between them indicates good agreement.[12] Nevertheless, the dampening of central impulses from the hypothalamus inhibits activation of the hypothalamic-pituitary-corticoadrenal axis, and thus barbiturates may influence a non-neurogenic factor.

In 1947 Fowler and I [3c] objected to the term "neurogenic hypertension" on the basis that satisfactory sympathetic denervation in nonrenal hypertension need not lower the blood pressure appreciably. We suggested that hypothalamic-pituitary stimulation may not be decreased by splanchnicectomy. Increasing knowledge since that time indicates that our early stand in this matter was justifiable. A diagram of Long and co-workers (fig. 2) illustrates how a neurogenic stimulus may jump to the endocrine apparatus and may become a self-perpetuating mechanism. We suggested the term neuroendocrine hypertension in contradistinction to renal hypertension.

It is more likely that all mechanisms are simultaneously activated (fig. 3) by a central stimulus, including the renal than that hypertension is caused by the neurogenic mechanism alone. This is the reason the term "a neurogenic factor in hypertension" is preferable to "a neurogenic hypertension," which, as a continuous diastolic hypertension, in man cannot exist without involving the other two systems.

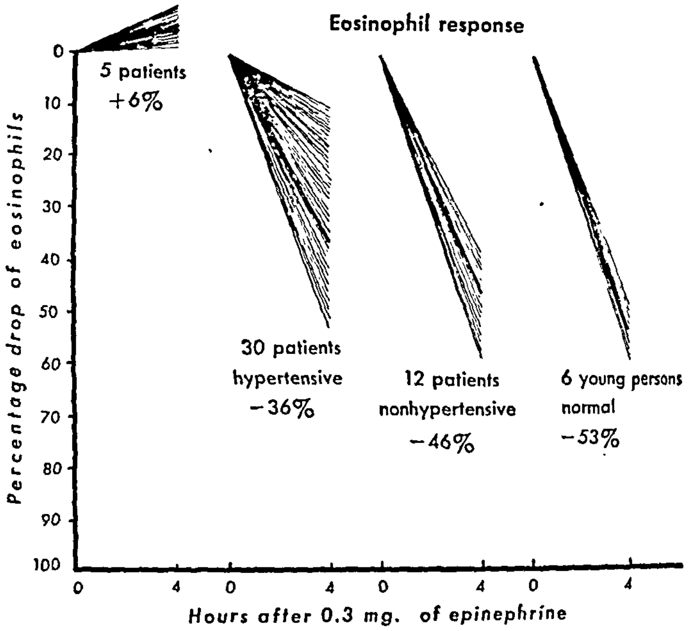

Fig. 4.—Eosinophil response to 0.3 mg. of epinephrine, injected intravenously in 200 cc. of isotonic sodium chloride solution. The first column shows patients with no response. They all had allergies. Thirty hypertensive patients (all before operation) showed less response than 12 normotensive patients. Six young normal persons showed the greatest response. (de Takats, G.: Causes of Failure in Surgical Treatment of Hypertension, Angiology **1**: 457, 1950.)

Other methods for testing for vasomotor reactivity, such as the pressor response to carbon dioxide,[3b] to breath holding,[13] to posture,[14] and to exhaling with a

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9. Moschcowitz, E.: Vascular Sclerosis with Special Reference to Arteriosclerosis: Pathology, Pathogenesis, Etiology, Diagnosis, Prognosis, Treatment, New York, Oxford University Press, 1942. Castleman, B., and Smithwick, R. H.: Relation of Vascular Disease to Hypertensive State: Adequacy of Renal Biopsy as Determined from Study of 500 Patients, New England J. Med. **239**: 729, 1948.

10. Hines, E. A., Jr.: Significance of Vascular Hyperreaction as Measured by Cold-Pressor Test, Am. Heart J. **19**: 408, 1940.

11. Reiser, M. F., and Ferris, E. B.: Nature of Cold Pressor Test and Its Significance in Relation to Neurogenic and Humoral Mechanisms in Hypertension, J. Clin. Investigation **27**: 156, 1948.

12. Frew, J. L., and Rosenheim, M. L.: Labile Neurogenic Component of Hypertension: Comparison of Effects of Tetra-Ethyl-Ammonium Bromide and Rapidly Acting Barbiturate (Seconal), Clin. Sc. **7**: 217, 1949.

13. Ayman, D., and Goldshine, A. D.: Breath-Holding Test: Simple Standard Stimulus of Blood Pressure, Arch. Int. Med. **63**: 899 (May) 1939.

14. Smithwick, R. H., and Robertson, C. W.: Phenomenon of Hyperreactivity: Definition and Illustrations, Angiology **2**: 143, 1951.

15. Wilkins, R. W.; Culbertson, J. W., and Smithwick, R. H.: Effects of Various Types of Sympathectomy on Vasopressor Responses in Hypertensive Patients, Surg., Gynec. & Obst. **87**: 661, 1948.

16. Williams, A. H., and Schroeder, H. A.: Regional Vasomotor Tone in Normotensive and Hypertensive Dogs, Circulation **4**: 706, 1951.

17. de Takats, G.: Corticoadrenal Factor in Hypertension, Surgery **26**: 67, 1949.

closed glottis against measured resistance,[15] are useful. It should be emphasized, however that they simply measure vasomotor tone, which may be great in a patient with unilateral renal disease or chronic atrophic pyelonephritis. Thus a sympathectomy that has to extend to the third dorsal level [11] or a typical lumbodorsal sympathectomy [14] abolishes fluctuations of vasomotor tone and decreases vascular resistance in the mesenteric area, where it is the highest whether the hypertension is neurogenic or renal.[16]

*The Corticoadrenal Mechanism.*—This factor has been studied recently in hypertensive patients.[17] The insulin tolerance and the epinephrine eosinophilia [6] were used to estimate the participation of this mechanism. It would seem from the experience of Perera [1a] that both sodium and the adrenal cortex are factors in blood pressure regulation, without the adrenals actually causing the hypertensive state. Efforts are now being made to depress the action of the adrenal cortex by sodium restriction, using potassium thiocyanate and sterols to counteract the sodium factor in the adrenal cortex. The surgeon can do a partial or total bilateral adrenalectomy with the aid of replacement therapy,[18] but the indications are certainly not the same as those in Cushing's syndrome. In fact, our own data indicate that most patients with hypertension who come in for study at a late stage of their disease have a poor corticoadrenal reserve (fig. 4), perhaps in a phase preceded by increased activity.[19] Since regeneration of the adrenal remnant is dependent on anterior pituitary acceleration,[20] bilateral splanchnicectomy and dorsolumbar sympathectomy, combined with partial amputation of the adrenal glands bilaterally, seems indicated when corticoadrenal activity is demonstrable. The increased resistance to insulin, which is known to occur in Cushing's syndrome, in the diabetes caused by corticotropin (ACTH) in man, and in malignant hypertension has also been seen in a small group of patients with hypertension who are obese, who have a diabetic type of sugar tolerance curve, and whose symptoms fit Schroeder's description of a pseudo-Cushing's syndrome (fig. 5). While the adrenal glands are always examined during operation, such patients require specifically thorough examination and occasionally a cortical adenoma [17] (fig. 6) may be found.

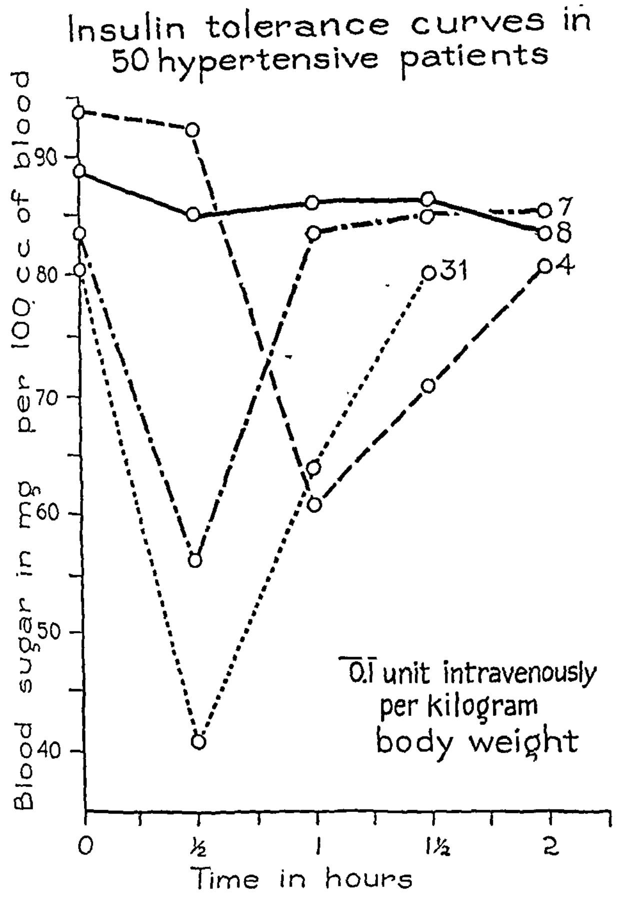

Fig. 5.—The insulin tolerance of hypertensive patients. Note that out of 50 patients, 8 showed no response and 4 a delayed response to insulin given intravenously. (de Takats, G.: Corticoadrenal Factor in Hypertension, Surgery 26:67, 1949.)

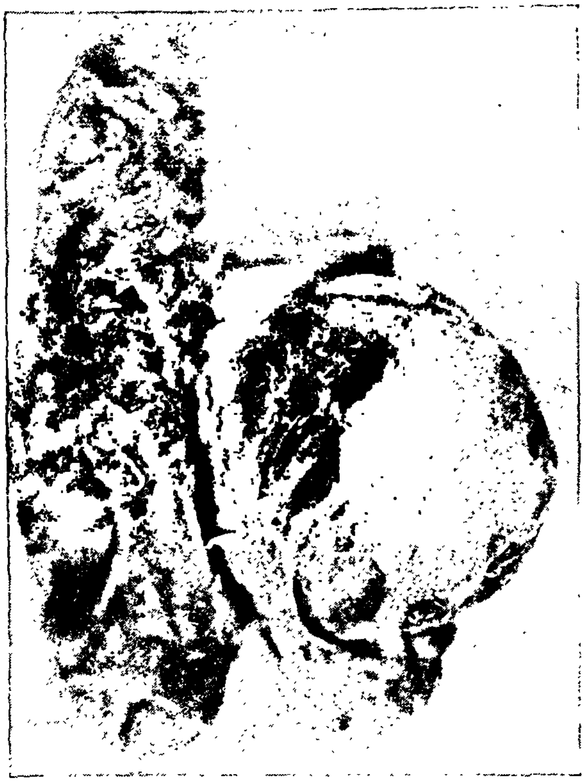

Fig. 6.—Cortical adenoma removed with entire adrenal gland in a hypertensive man.

*The Renal Mechanism.*—Hypertension resulting from bilateral primary disease of the kidney cannot be influenced by sympathectomy except by eliminating fluctuations of blood flow in a damaged kidney. The removal of one kidney affected by atrophic pyelonephritis or hypoplasia will have no effect if the other kidney has hypertensive damage. But in most patients it is the extent of bilateral nephrosclerosis that determines whether or not

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18. Green, D. M.; Nelson, J. N.; Dodds, G. A., and Smalley, R. A.: Bilateral Adrenalectomy in Malignant Hypertension and Diabetes, J. A. M. A. 144:439 (Oct. 7) 1950. Zintel, H. A., and others: Subtotal Adrenalectomy in Treatment of Patients with Severe Essential Hypertension, Ann. Surg. 134:351, 1951.

19. Laragh, J. H., and Almy, T. P.: Changes in Circulating Eosinophils in Man Following Epinephrine, Insulin, and Surgical Operations, Proc. Soc. Exper. Biol. & Med. 69:499, 1948.

20. Ingle, D. J.: Control of Regeneration of Adrenal Cortex in Rat: Pituitary-Adrenal Function, Ass. for Advancement of Science, Washington, D. C., 1950.

hypertensive cardiovascular disease can be influenced by sympathectomy. This concept, recently supported by the work of Byrom and Dodson,[21] has been the basis of our consistent emphasis on the value of a water tolerance test (fig. 7) in determining operability, and on criteria that are far more rigid then if only the specific gravity range on concentration and dilution is utilized. Unless the patient shows one of the patterns of urinary output and specific gravity shown in the upper row of figure 6, the effect of sympathectomy, at least on the resting blood pressure, will be doubtful, since the renal mechanism will participate in the maintenance of diastolic hypertension and renal vascular damage is the least reversible of all types of vascular involvement.

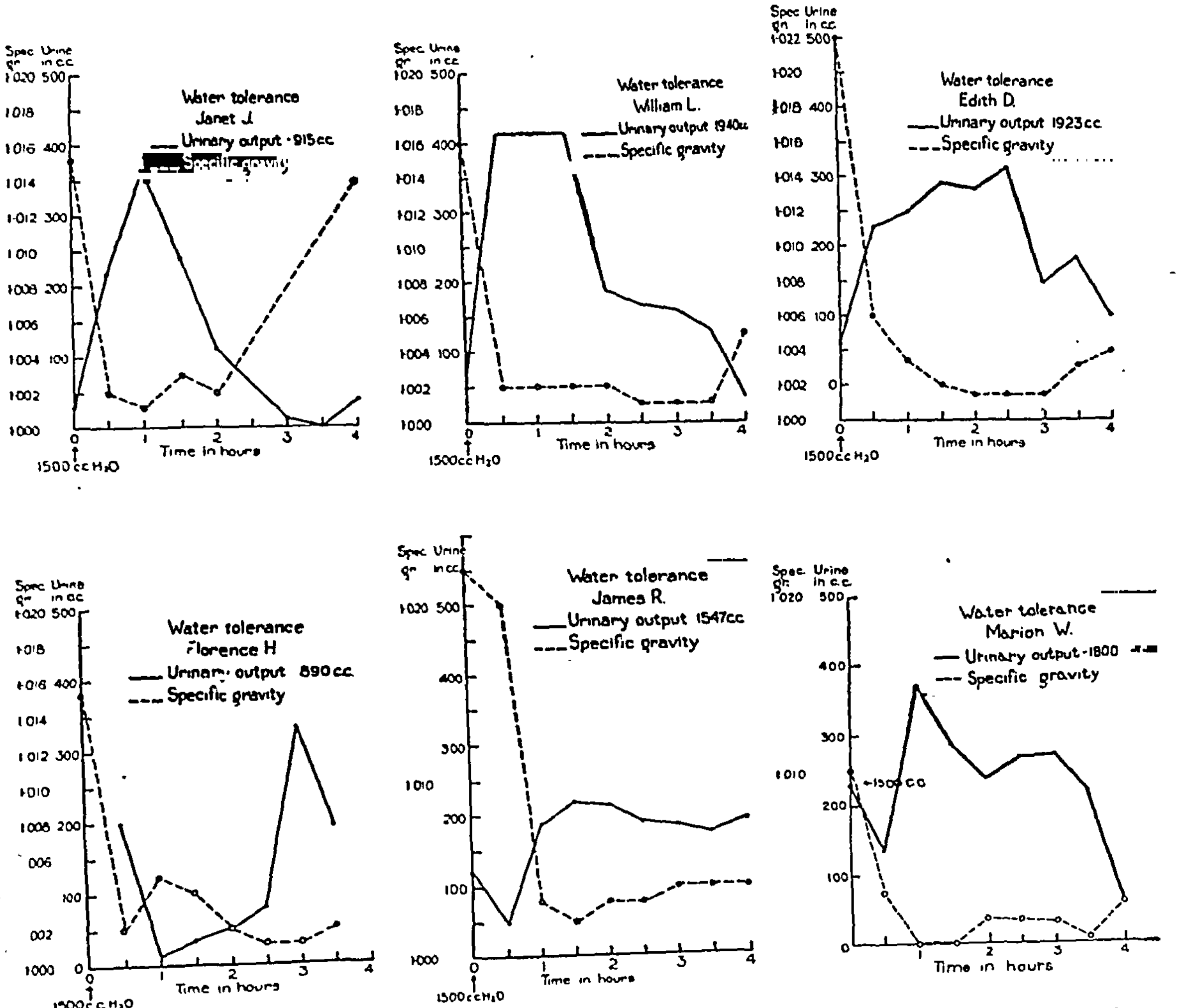

Fig. 7.—The water tolerance of hypertensive patients after ingestion of 1,500 cc. of water. The six patterns show a decreasing adaptability of the kidney to this stress. Correlation of the patterns with results obtained by dorsolumbar sympathectomy indicate that patterns 4, 5, and 6 constitute a contraindication to operation. (de Takats, G.: Cause of Failure in Surgical Treatment of Hypertension, Angiology **1**: 457, 1950.)

Thus in a preoperative study of a hypertensive patient the emotional and regional vascular factors should be coevaluated and the participation of the neurogenic, corticoadrenal, and renal mechanisms be weighed. The interrelation and the resulting vicious circle may be broken at several points, notably at the level of the sympathetics and in the adrenals. Revascularization of the ischemic kidney [22] has not resulted in improvement, at least in late stages of hypertensive cardiovascular renal disease.

*Indication for Splanchnicectomy.*—Consistently in the cases discussed three distinct indications for operation have been employed. An intermittent hypertension that can be reduced to normal by bed rest or by barbiturates may be watched expectantly, but, at the appearance of the earliest sign of vascular damage in the retina, heart, or kidney, sympathectomy should be undertaken for two reasons. In the first place, the patient has demonstrated his vascular vulnerability, which varies according to sex, heredity, environment, and possibly dietary factors. In the second place, operation in this stage is highly efficient in arresting the progress of vascular damage and in reducing the blood pressure to a normal level.

The second indication is the condition of a middle-aged hypertensive patient who shows diffuse vascular damage and whose moderately elevated diastolic pressure of 100 to 110 mm. Hg. shows a consistent rise in spite of medical management. Such a patient has irreversible arteriosclerosis and his diastolic pressure cannot be lowered below 100 to 110 mm. Hg. His prognosis will depend, as will be shown later, on the extent of renovascular damage and on the many uncontrollable factors that initiate vascular accidents in the brain and heart. Nevertheless, lowering of the diastolic pressure and the lessening of sudden rises of pressure that occur with exertion, undue emotion, cold, and posture change give such a patient better chance for survival than if the hypertension is not treated.[8]

The third indication is hypertension in the rapidly progressive premalignant phase or, should one believe in a malignant phase with papilledema, when the diastolic pressure is fixed but no advanced renal damage has occurred. In such patients the operation may be life-saving, but, as will be pointed out, the extent of the operation must be correlated with the severity of the disease so that in this stage more extensive procedures are in order.

The fourth indication is intractable headache resulting from hypertensive encephalopathy in patients with advanced renal damage. This palliative procedure is a limited one stage operation that is equivalent to a continuous venesection in diverting blood from the cerebral and retinal areas and aiding cerebral compensation. This fourth indication has been recognized very seldom as valid, but this situation does occur occasionally.

The extent of sympathetic denervation should be adapted to the patient's preoperative state (figure 8). The one stage supradiaphragmatic sympathectomy (Peet) has been used for palliation. The two stage subdiaphragmatic operation (Adson), with partial adrenalectomy, is now used for patients with marked corticoadrenal participation. Retropleural transdiaphragmatic extension is always possible. The two stage lumbodorsal sympathectomy and splanchnicectomy (Smithwick) is done in juveniles with intermittent hypertension, in women with post-toxemic hypertension, and for progressive diastolic hypertension prior to the malignant phase; in other words, in the majority of patients. A transpleural, thoracic sympathectomy is done in patients with cerebral or cardiac decompensation, the lumbar chains being preserved to avoid postural hypotension. A two to four stage transpleural sympathectomy from the third dorsal to third lumbar nerve (Hinton)[23] is performed in the premalignant phase when there is adequate renal function. A total sympathectomy or sympathectomy with rhizotomy at the levels of D12, L1, and L2 [24] has not been performed in this series.

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[21] Byrom, F. B., and Dodson, L. F.: Mechanism of Vicious Circle in Chronic Hypertension, Clin. Sc. **8**: 1, 1949.

[22] de Takats, G., and Scupham, G. W.: Revascularization of Ischemic Kidney, Arch. Surg. **41**: 1394 (Dec.) 1940.

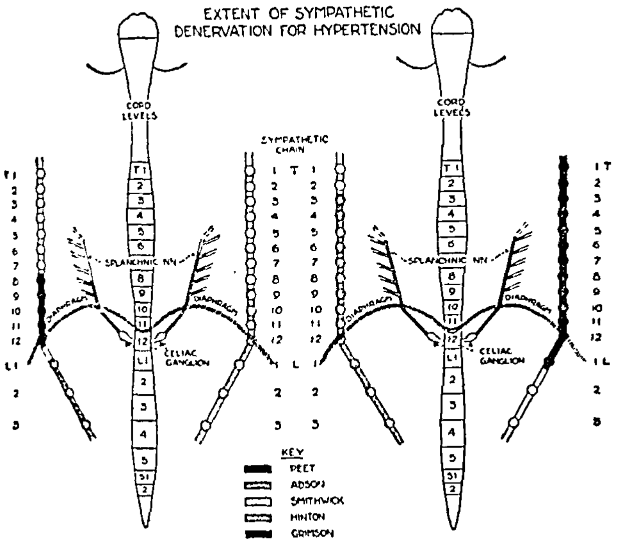

Fig. 8.—The extent of sympathetic denervation for hypertension as done by different surgeons. (de Takats, G.; Julian, O. C., and Fowler, E. F.: The Surgical Treatment of Essential Hypertension: IV. Case Selection and Technique as Influencing Result, Surgery **24**: 469, 1948.)

## EVALUATION OF RESULTS

Three possible methods may be used for evaluation of results of sympathectomy in hypertension. Comparison of mortality and survival rates of patients treated by operation with the rates in the nonsurgical series of Keith, Wagener, and Barker [7] has been utilized by some clinics.[8] There are two objections to this method: first, the nonsurgical series may contain unusually advanced cases (fig. 9), and second, the survival rate per se does not represent the severe invalidism that patients suffer following a cerebrovascular accident or repeated coronary occlusion with status anginosis or bouts of decompensation. The second approach has been used by us in estimating the fall in blood pressure in three groups of patients treated surgically. The falls are averaged and compared to preoperative figures. Two valid criticisms of this method are that the preoperative blood pressures, no matter how often and how carefully taken, are invariably too high owing to preoperative stress, and, second, that such surveys assume that lowering of blood pressure is the only goal of the operation. Whether the blood pressure will be lowered is certainly the question asked by all patients prior to operation. Since the operation is intended for prevention or arrest of progress of cardiovascular renal disease, the height of the blood pressure does not indicate the improvement of eyegrounds, diminution of heart size, improvement in the cardiogram, or relief of increased vascular resistance in the mesenteric area. Therefore in evaluating the five year results to be presented here, I have simply separated those who have had a worth-while result from those in whom the operation has been considered to be not worth while. This introduces a purely subjective element in the judging of results, but it is the same subjective element that will lead the surgeon to advise sympathectomy in one case and not in another. It also enables the patient's family to have a preoperative prognosis that none of the statistical data dealing with trends, groups, means, or ambiguous results of analyses can supply.

The result was considered worth while in the first group with intermittent hypertension when the pressure fell to normal. The upper limit of normal diastolic pressure was considered to be 100 mm. Hg. on casual office examination, and the patient should have full working ability. In the second group of middle-aged patients with arteriosclerosis a worth-while result was postulated as stabilization of diastolic pressure at or below 110 mm. Hg., together with improvement or no deterioration of cardiovascular status and restoration of full working ability. Obviously, the patient may become disabled by an independent disease or an automobile accident that would not be attributed to the cardiovascular disease. In the premalignant group disappearance of papilledema, improvement of symptoms, and even being alive after five years with some earning power was counted as a worth-while result. Since all the palliative operations done in the malignant phase have been followed by death within five years, the improvement in this group can only be judged by relief of intractable headache, palpitation, and angina. This group has not been evaluated because five years ago only three such patients were operated on. At present drugs, diets, venesection, or partial adrenalec-

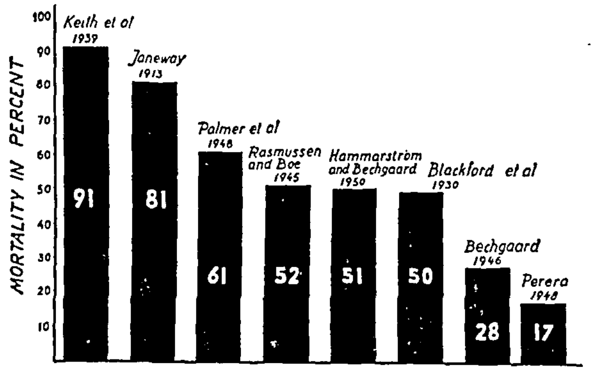

Fig. 9.—Mortality rates of hypertensive patients not treated surgically. Constructed from a tabulation in Smithwick, R. H.: Surgical Measures in Hypertension, Springfield, Ill., Charles C Thomas, Publisher, 1951.

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[23] Hinton's approach is retroplural, but the extent of the operation is the same.

[24] Ray, B. S., and Console, A. D.[illegible]on of Tot[illegible] [illegible]thectomy, Ann. Surg. **130**: [illegible], 1949.

tomy may entirely eliminate the use of sympathectomy for malignant hypertension.

From the above description the group without worthwhile results can readily be defined. The results in the first and third groups after five years are very satisfactory (table 1). Dissatisfaction with the results in the second group led to examination of the causes of failure, and the importance of studying renal function became apparent. A table presented in a previous study indicates that there are some failures, of course, as a result of insufficient denervation or subsequent cardiovascular accidents, but the majority of them were unexplained (table 2). Correlation of these failures with the pattern of water tolerance [25] (table 3) shows the importance of an irreversible renal mechanism in vitiating the result of sympathectomy. This is the main limiting factor of sympathectomy.

TABLE 1.—*Results of Lumbodorsal Sympathectomy for Hypertension After Five Years*

| Group | No. of Cases | Results: Worth-While | Results: Not Worth-While |
|---|---|---|---|
| 1 | 15 | 12 | 3 |
| 2 | 31 | 21 | 10 |
| 3 | 9 | 4 | 5 |
| Total | 55 | 37 | 18 |

COMMENT

Thus certain limitations of sympathectomy for hypertension can be established. Hypertension in the adolescent, latent hypertension with increased vascular reactivity, and intermittent hypertension without vascular damage have not been included among surgical indications. Arteriosclerotic hypertension with little or no progression is distinctly a medical problem. Advanced essential hypertension with irreversible damage that is mostly renal does not respond favorably to sympathectomy. While our mortality has stayed below 1% and postoperative complications have been limited to the first six to eight weeks, mostly in the form of intercostal neuralgia,[26] no one should undertake a major, two stage procedure with a one month hospital stay and an additional two months of convalescence without reasonable expectation of improvement.

TABLE 2.—*Causes of Failure Following Sympathectomy for Hypertension in 65 (16%) of 400 Patients, 1940-1948*

| Cause of Failure | Method of Detection |
|---|---|
| Psychic | Interview by psychiatrist |
| Technical | Postoperative sweating test |
| Renal | Water tolerance test |
| Adrenal | Insulin tolerance test<br>Water tolerance test<br>Epinephrine eosinophil count |

With the advent of the popularity of sodium restriction, potassium thiocyanate, the newer ergot preparations, and vasodilators, together with the recognition of the importance of the doctor-patient relationship [1a] and the avoidance of stressful situations, a number of patients have experienced symptomatic benefit and objective lowering of diastolic pressure. It should be pointed out, however, that the progress of cardiovascular disease is the most important consideration and that a patient's changed attitude toward his hypertension as brought about by skillful psychotherapy does not necessarily reflect itself in a lowered arteriolar tone or an improvement of regional vascular status.[3c]

The effect of sympathectomy on the three basic mechanisms, namely the neurogenic, corticoadrenal, and renal mechanisms, has already been mentioned. Neurogenic vasoconstriction, whether it originates in the central nervous system or reflex, is effectively blocked by sympathectomy in the areas that mediate splanchnic vasoconstriction. Regeneration, particularly from unexcised ganglia outside the sympathetic chain and splanchnic nerves, is possible and technical modification here may have to be considered.[24] However, as shown by Wilkins and his associates,[15] the limited lumbodorsal sympathectomy and splanchnic section of Smithwick effectively blocks the sudden rises of blood pressure, even if basal pressures are not lowered. The splanchnic vasoconstriction affecting the kidney, liver, and spleen in the upright posture is also eliminated. When brain or heart would benefit from sympathetic denervation, the transpleural, thoracic sympathectomy is logical, with avoidance of the lumbar chain because of its hypotensive effect in the erect position.

TABLE 3.—*Correlation of Water Tolerance With Results Obtained by Dorsolumbar Sympathectomy**

| Water Tolerance Pattern † | No. of Cases | Results: Excellent | Results: Good | Results: Unsuccessful |
|---|---|---|---|---|
| 1 | 15 | 13 | 2 | .. |
| 2 | 42 | 3 | 39 | .. |
| 3 | 29 | .. | 21 | 8 |
| 4 | 9 | .. | 1 | 8 |
| 6 | 5 | .. | 5 | .. |
| Total | 100 | 16 | 68 | 16 |

* de Takats, G., and Fowler, E. F.: Water Tolerance of Hypertensive Patient: Its Relation to Operability, Am. Heart J. 38: 234, 1949.

† Figure 7. No results were determined for patients with water tolerance pattern no. 5.

Knowledge regarding the effect of splanchnicectomy on the adrenal cortex is meager. Histologic sections, reviewed with the late R. H. Jaffe, suggested marked lipid storage after splanchnicectomy in the dog.[27] Since epinephrine mobilization is decreased following splanchnicectomy, the effect of epinephrine on the pituitary-corticoadrenal axis is decreased and thus a better reserve may be built up. Such a possibility is suggested by the improved eosinophil response of persons with hypertension following splanchnicectomy (fig. 4). This change, together with an increased sensitivity to insulin, comes on slowly over a period of months or years and may explain the late gradual improvement following surgical treatment for hypertension. The influence on the adrenal factor by sodium restriction, potassium thiocyanate, or propylthiouracil [28] explains the beneficial effect of these measures after sympathectomy. Naturally actual reduction of adrenal tissue may be the optimal procedure, but since the adrenal cortex is one of the cornerstones of defense against stress, such operations must have strict indications unless one wants to encounter a number of listless, nonresistant, vegetable-like persons, not unlike the domesticated rats of Richter that cannot survive in the company of the wild Norwegian rat.[1b]

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[25] de Takats, G., and Fowler, E. F.: Water Tolerance of Hypertensive Patient: Its Relation to Operability, Am. Heart J. 38: 234, 1949.

[26] Fowler, E. F., and de Takats, G.: Side Effects and Complications of Sympathectomy for Hypertension, Arch. Surg. 59: 1213 (Dec.) 1949.

[27] de Takats, G., and Cuthbert, F. P.: Effect of Suprarenal Denervation and Splanchnic Section on Sugar Tolerance of Dogs, Arch. Surg. 30: 151 (Jan.) 1935.

[28] de Takats, G.: The Phenomenon of Stress in Relation to Human Essential Hypertension, Angiology 2: 6, 1951.

The idea that renal blood flow is independent of neurogenic control will have to be modified, since the clearance techniques of Homer Smith can be used to test patients in an erect posture after exposure to cold or after a stressful interview. But when basal renal flow is low and since the sympathetics seem to control only efferent arteriolar tone of the glomerulus, the renal factor in hypertension becomes dominant. It is quite possible, of course, that the corticoadrenal factor acts through the kidney, not through a direct vascular effect, and that more will be accomplished in so-called irreversible renal damage by adrenalectomy than has been possible thus far with sympathectomy.

## SUMMARY

The initiating and maintaining factors of human diastolic hypertension have been described. The neurogenic, corticoadrenal, and renal factors form a vicious circle, which can be broken at several points, notably by sympathectomy. Sympathectomy, however, has definitely limited indications and has been only undertaken in three groups of patients whose status is readily defined. A five year follow-up of a small number of closely observed patients revealed that improvement in results could be expected mainly by attention to the renal factor. The object of the operation is primarily arrest of cardiovascular disease and not the lowering of blood pressure, which in itself does not mirror organic vascular damage. Operations affecting the increased mesenteric resistance are of most benefit. While newer diets and drugs may replace the necessity for operation in certain persons, sympathectomy has a definite, well-defined place in the treatment of human essential hypertension.

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# NATURE AND RECOGNITION OF CEREBRAL PALSY IN INFANCY

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The diagnosis of cerebral palsy is seldom made in early infancy, despite the fact that in approximately 90% of affected children the condition is congenital.[1] The purpose of this paper is to discuss the nature of cerebral palsy in infancy, with special emphasis on early diagnosis. Much of the information presented is general knowledge, although some observations are reported directly from our personal experiences.

Cerebral palsy is a term used to designate any paralysis, weakness, incoordination, or functional aberration of the motor system resulting from a pathological condition in the motor centers of the brain. The disease may be so localized as to cause only motor symptoms. More frequently, however, the brain damage is diffuse and may also cause convulsions, mental retardation, speech defects, behavior disturbances, and sensory losses of varying degree, particularly in hearing and vision. Sometimes only one of these associated defects exists; oftener, several are in evidence, although one symptom generally predominates.

The diagnosis of cerebral palsy can be established by the experienced clinician in most cases within the first six months of life and in almost all cases within the first year. Early diagnosis is important because it permits early treatment, thus affording better therapeutic results. If the condition is treated from infancy much of the deformity associated with spastic forms of the disease can be prevented. Early diagnosis of cerebral palsy in infants being considered for adoption is important also.

An infant with cerebral palsy may have sufficient undamaged brain tissue to begin developing at an apparently normal pace, not manifesting obvious deviations from the normal until late in infancy. For example, a child with moderately severe damage of the basal ganglions may seem to be developing normally until late in the first year, when he first exhibits athetoid movements and tensions. As a general rule, however, certain stigmas can be recognized in early infancy that indicate the presence of such organic brain disease.

## ETIOLOGY

In cases of suspected organic brain damage, a carefully taken history may be more valuable than the physical examination for providing positive clues as to the cause, type, and severity of the neurological disturbance; this is especially true for infants. The history should provide a complete account of the pregnancy, the labor, and the infant's condition immediately after birth. The importance of these factors is underlined by the statistically significant correlation between certain etiological factors and specific clinical syndromes. Some of the more common neurological sequelae of various etiological factors are shown in the following tabulation.

| | |
|---|---|
| Prematurity | Spastic paraplegia |
| Breech delivery | Athetoid or spastic paraplegia |
| Toxemia of pregnancy | Spastic hemiplegia or quadriplegia |
| Birth trauma | Spastic hemiplegia or quadriplegia |
| Anoxia | Athetosis |
| Rh factor and kernicterus | Athetosis, with deafness and paralysis of supravergence |
| Maternal rubella | Spasticity, with deafness or auditory aphasia, cataract, and congenital heart disease |
| Precipitate or cesarean delivery | Spastic quadriplegia, ataxia, or rigidity |
| Placenta previa and abruptio | Athetosis |

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From Michael Reese and Cook County hospitals.

[1] Report of New York State Joint Legislative Committee to Study Problem of Cerebral Palsy, Legislative Document no. 55, Albany, N. Y., 1949.

These indicate more fundamental correlations: brain damage caused by anoxia is usually followed by extrapyramidal syndromes; brain damage caused by primary hemorrhage or trauma is usually followed by pyramidal syndromes.

## CLASSIFICATION

Although no two persons with cerebral palsy are exactly alike in the character or degree of motor involvement, it is possible to group most patients according to one of several classifications. These may be based on etiological factors, sites of the neuropathological condition, localization of extremity involvement, severity of involvement, or qualitative nature of motor involvement. A classification, such as the following one, based primarily on clinical symptoms, is the most practical:

1. *Spasticity:* with involvement of the pyramidal tract. These are characterized by stretch reflexes, increased muscle tone, and the classical findings of "upper motor neuron" involvement.
2. *Hyperkinesias:* with involvement of the extrapyramidal tract.
    - A. *Athetosis:* characterized by involuntary, incoordinate, uncontrollable, purposeless movements with varying degrees of muscle spasm or tension.
    - B. *Dystonias:* characterized by marked tension, with greater involvement of the axial muscles and resultant tonic postural attitudes.
    - C. *Tremors:* characterized by uncontrollable motions, pendular or pattern-like in nature, involving alternate agonist-antagonist muscle actions.
3. *Rigidities:* characterized by a resistance to slow passive motion, which is usually intermittent, and by simultaneous contractions of agonist and antagonist muscle groups.
4. *Ataxias:* due to involvement of the cerebellum and its tracts. These are characterized by loss of balance sense, hypotonia, and dyssynergia.

Spasticity and ataxia usually occur as pure syndromes. Hyperkinesia and rigidity frequently coexist, with variable and intermittent predominance of one of these extrapyramidal syndromes. This paper will be concerned primarily with spastic and athetoid cases, which constitute about 90% of all cases of cerebral palsy.

## ASSOCIATED HISTORY AND SYMPTOMS

In addition to the prenatal and birth data earlier mentioned, the history should include information on growth and developmental progress, feeding and sleeping habits, reaction to various forms of stimuli, and the presence or absence of convulsions. Frequently parents will exaggerate, or be otherwise unrealistic about, their child's progress and abilities. Normal siblings provide comparative developmental controls for determining the patient's rate of progress.

In the following sections are discussed the symptoms that usually cause the parent to bring a child with cerebral palsy to the physician.

*Convulsions.*—Convulsions occur in only 0.5% of the general population. In contradistinction, they occur in approximately 40% of children with cerebral palsy, the incidence being about three times as great in spastic children as in athetoid children. A study of 1,000 consecutive patients with cerebral palsy encountered in a pediatric neurologic service revealed that 50% of all spastic patients and 15% of all athetoid patients had convulsive episodes. The seizures in the cerebral palsied child are predominantly of the grand mal type, although petit mal and akinetic or myoclonic seizures are not uncommon. Seizures are often focal in nature. Psychomotor spells in children are not common. As a general rule, the prognosis is worse when convulsive seizures are part of the clinical picture. The nonrecurrent convulsions of the first weeks of life or the febrile convulsions of the first two or three years do not carry the same poor prognosis as the recurrent nonfebrile convulsions of the postneonatal period.

*Feeding Difficulties.*—Cerebral palsied children often have severe feeding difficulties. This is especially true in those of the athetoid group. The cause of the difficulty may be one, or a combination of, the following factors:

- A. Persistent vomiting, of central or peripheral origin.
- B. Difficulty in swallowing, due to persistence of reversed tongue movements.
- C. Gagging from "swallowing" tongue during feedings or from difficulty with glottis.
- D. Constipation resulting from loss of abdomina muscle tone, increased water loss, and decrease fluid intake.
- E. Excessive gas formation and "colic" associate with constipation.
- F. Spasms of muscles of swallowing and breathin
- G. Psychogenic anorexia due to forced feeding.

A child with a brain injury resulting in hyperkinesi has increased caloric and fluid requirements, fulfillme of which may be thwarthed by feeding difficulties, th establishing a vicious circle. These infants may sho any or all of the symptoms usually associated with th "hypertonic infant," namely, irritability, failure to gain weight, vomiting that may simulate that of pyloric spasm, colic, constipation, poor feeding ability, excessive crying, back arching, and drawing up of the legs. When a child presents the above picture without apparent cause, and when the symptoms persist in spite of treatment, one should suspect organic brain disease, most likely of the extrapyramidal type.

*Drooling.*—Normal children begin to drool at the age of 3 months, and may continue to drool for approximately nine months. Drooling in children of this age group, unless excessive and persistent, is not indicative of cerebral palsy. Excessive drooling in cerebral palsied children may be the result of difficulty in swallowing, difficulty in keeping the mouth closed, or reversed tongue movements.

*Delayed Speech.*—A normal child babbles at the age of 6 months and speaks words at about the age of 1 year. An infant with cerebral palsy may have any type of speech disorder, ranging from complete absence of babbling or language, persistence of babbling, or difficulty in word formation or in language concepts, to minor rhythmical or functional disturbances.

The muscles of the tongue, palate, or larynx, or other muscles of respiration, chewing, and swallowing may be involved in speech impairment of motor origin. The muscle involvement is similar to that found in the extremities of the same patient.

Deafness, partial or complete, and mental retardation may delay or distort the normal speech pattern. Lack of motivation for speech as a result of overindulgence by parents may also delay speech. The syndromes of congenital motor aphasia or of difficulty in language perception or symbol comprehension must also be considered when speech is delayed.

*Dental Problems and Teeth Grinding.*—Severe metabolic disturbances caused by cyanosis or birth injuries may interfere with the development of enameloblasts in the deciduous teeth. The resulting enamel defects appear in the newly erupted teeth and may be responsible for the rapid erosion produced by the superimposed factor of excessive grinding. Teeth grinding is commoner and severer in cerebral palsied children than it is in normal children. Teething occurs at the same age in both.

*Disturbance in Sleep Pattern.*—A child with brain damage may be apathetic or hyperirritable. He may sleep almost constantly and may have to be aroused for feedings. On the other hand, if a painful stimulus such as abdominal colic exists, the infant may cry almost constantly and obtain little sleep. Hyperirritability to sound and other stimuli may result in startle reactions during sleep and drowsy states, as well as during the waking hours.

*Delay in development of functional activities* will be discussed in detail under examination of the motor system.

*Sensory defects and mental retardation* are not forms of cerebral palsy unless accompanied by signs and symptoms of abnormal motor function. They are discussed in detail in a special section of this paper.

## PHYSICAL EXAMINATION

*General Observations.*—Cerebral palsied children generally appear small for their age. Although properly proportioned, they are often constitutionally smaller and thinner, frequently weighing only 14 or 15 lb. (6.4 or 6.8 kg.) at the age of 1 year. This is especially true of athetoid children. Spastic children, especially of the paraplegic type, may be average in weight or overweight. Tissue turgor may be poor because of increased food demands, impaired feeding ability, and excessive perspiration. Vitamin and caloric requirements are also increased, so that deficiencies, particularly avitaminosis B, frequently occur. Thermolability, particularly the tendency to hyperpyrexia, with or without apparent cause, frequently accompanies extrapyramidal lesions.

*Facial Appearance and Expression.*—A normal baby begins to smile when 4 to 6 weeks old, and at the age of 3 months smiles frequently when pleasantly stimulated. As he grows older he also develops a differentiated smile, with variation in emotional content depending on the nature of the stimulus. Failure to smile, especially on stimulation, and failure to respond to the examiner's and mother's beckonings by changes of facial expression may be due to mental retardation or to cerebral palsy involving the facial musculature. Spastic infants and those with postencephalitic rigidities may have masked facies, with apparent apathy and failure to respond to stimulation with appropriate facial expressions. Athetoid infants may have very expressive facies, with excessive grimacing and facial distortions that are often inappropriate and unrelated to the specific stimuli. In older infants, attempts to talk or to perform any voluntary movements that increase tension may result in a typical open-mouthed expression ("opera singer's mouth") caused by a downward pull of the mandible.

*Abnormal Skull Contour.*—Hydrocephalic children are frequently spastic. Internal hydrocephaly usually results in a dolichocephalic head, whereas external hydrocephaly usually results in a brachycephalic head. Asymmetric flattening of the occipital and parietal bones is not rare in cerebral palsied children. The presence of hydrocephaly or other skull abnormalities in themselves do not predicate the coexistence of cerebral palsy. Hydrocephalic children may have an ataxia caused primarily by the enlarged size and weight of the head.

## EXAMINATION OF MOTOR SYSTEM

Examination of the motor system should begin with observation of the movements of various parts of the body at rest, on stimulation, and in various positions. The infant should be as relaxed as possible. This is often facilitated by placing him in a prone position or by examining him while he is held by his mother.

It must be reemphasized that a child with organic involvement of the motor centers may show no gross spontaneous evidence of motor abnormality for the first 12 to 18 months after birth, except for delay in general motor development. The severity of signs and symptoms and the age at which they appear are determined by the localization and extent of the organic defect. With pyramidal tract damage, the stigmas may be present immediately at birth or soon afterward, and almost always appear before the age of 6 months. In extrapyramidal tract damage, it may be difficult to make a definite diagnosis before the second six months of life.

In pyramidal tract involvement (spasticity) the lower extremities are affected more severely or exclusively; in extrapyramidal tract lesions (athetosis, rigidity, and tremors) the head, neck, and upper extremities are usually more severely involved. In hemiplegia, over 95% of the cases are of the spastic type, and the upper extremity is usually more severely involved.

The correlation, as shown in the following tabulation, between localization of motor involvement and neurological diagnosis is constant enough to be of help in establishing a specific diagnosis in many cases of cerebral palsy.

| | |
|---|---|
| Hemiplegia | Spasticity |
| Paraplegia | Spasticity |
| Quadriplegia with greatest involvement in upper extremities | Athetosis |
| Quadriplegia with greatest involvement in lower extremities | Spasticity |

*Athetosis.*—In a normal infant arm and leg movements, such as leg kicking and arm flinging follow a purposeful pattern and are repetitious and predictable in nature. In children with extrapyramidal brain damage arm and leg movements are variable, unpredictable, apparently purposeless in nature, and follow no pattern.

If not spontaneously present, athetoid movements often may be elicited by primary voluntary motions, which then produce secondary overflow athetoid movements in other parts of the body. In tension athetoid children, development of extraneous movements of the lower extremities and trunk on attempted voluntary use of the upper extremities is often found.

Characteristic tensions may develop in the athetoid infant before athetoid motions develop. These tensions may be observed as intermittent stiffening spells or extensor spasms and are often caused by minimal stimuli. In less severe forms the tension may be manifested in straightening of the arms with clenching of fists, or extension of fingers on reaching for objects. The athetoid child may also maintain an attitude of extension at the shoulders and elbows and pronation of the forearms (pronator sign) because of increased muscle tension.

Athetoid movements, usually not manifest for many months, occasionally may be present at birth, as in the so-called congenital athetoid.

*Spasticity.*—An infant with spasticity may reveal evidence of such involvement in the first few months of life. In a quadriplegic infant there is a diminished amount of total motion, and the motion that is present is explosive and jerky. The child frequently presents an attitude of flexion of the upper extremities and extension of the lower extremities and often assumes characteristic reflex positional attitudes of the trunk and extremities. In infants with spastic hemiplegia, some voluntary motions may be possible in the involved extremities, but they are poorly performed. There is a disinclination to use the involved limbs, particularly the arm, disproportionate to the observable motor disability. In spastic paraplegia the upper extremity function is normal, but patterns of kicking, reciprocation, and other lower extremity functions are abnormal and are delayed in appearing.

A tendency to hold the thighs adducted because of spasticity of the adductor muscles exists in the presence of most pyramidal tract lesions. This "scissoring" tendency usually increases, and may become very noticeable when the child is held erect or when it attempts o stand and walk. It is usually accompanied by ankle uinus and internal rotation at the hip joints. In these children, the hips and knees are usually held in rigid extension on supported standing. Scissoring may also occur in athetoid children but, in contrast to that seen in spastic children, it is less constant and usually does not result in contractures.

If held by the legs and lowered until the head touches the floor, a normal baby will drop his arms as if to protect his head. When an infant with spastic upper extremities is so held, his arms may not drop but may be held rigidly in front of the body with extended elbows and pronated forearms, or only one arm may drop (hemiplegia), depending upon the localization of motor involvement. This may also occur in athetoid infants.

Occasionally, transient forms of spasticity, especially spastic hemiplegia, may occur. They are usually associated with convulsions, and often are due to intracranial hemorrhage or vasospasm. All the signs and symptoms of spasticity may be present at the age of 2 or 3 months and may disappear completely by the age of 1 year.

## SPECIFIC MOTOR TESTS AND OBSERVATIONS

*Stretch Reflexes and Resistance to Passive Motion.*—The exact type of neurological involvement may be diagnosed in a high percentage of cases of cerebral palsy by tests designed to elicit specific properties of the affected muscles. A positive stretch reflex may be considered pathognomonic of a spastic muscle. Typically, a spastic muscle may be put through a full range of motion passively, if the movement is carried out slowly. As the speed of the movement increases, a point is reached at which resistance is encountered. If the passive motion is rapid, it is quickly halted by a strong muscular contraction of the stretched muscle. This latter action is termed the stretch reflex. In mild cases, or in those accompanied by weakness or hypotonia, it may not be elicited until after the first year, but in severe cases it may be present within the first month of life. The stretch reflex is most frequently encountered in the antigravity muscles: the hip adductors, triceps surae, and quadriceps. It may also spread to the contiguous muscles and produce an involuntary overflow or mass motion.

Ankle clonus is a form of sustained stretch reflex and is more easily elicited when the patient is lying on his abdomen with his knees flexed. A tension athetoid patient may also have ankle clonus. However, with relaxation the ankle clonus of a spastic child becomes more evident and more sustained, whereas that of a tension athetoid child usually disappears.

Reaction to varying speeds of motion can also be used in testing muscles affected by extrapyramidal lesions. In a tension athetoid patient slow movements at a joint are usually resisted intermittently throughout the range of motion, whereas rapid movements will encounter little, if any, resistance. A simple method of differentiating tension athetosis from spasticity is by attempting to shake an extremity, e. g., the wrist and fingers, with rapid motion. An athetoid limb will begin to flail; a spastic limb will become tense.

The patient with rigidity shows constant or intermittent resistance to slow movement of his limbs; these reactions have been given the descriptive names of "lead pipe" and "cog wheel" rigidity, respectively. Either reaction is elicited by slow movement at the major joints and is overcome by rapid movement.

*Mass Movement.*—The infant with organic brain disease, either pyramidal or extrapyramidal, may display mass movements of a fetal nature in which all the extremities may be extended or flexed, or some flexed and some extended simultaneously, as in the tonic neck reflexes. These are reflex motions and usually assume the pattern of a protective action against bodily harm. They occur when the child is frightened or when strenuous attempts are made at voluntary movements. Although the movement is initiated in one extremity it may spread to all four extremities. These children may also have forceful arching tendencies of the head and back.

*Reciprocal Leg Movements.*—A normal child has a reciprocal kicking pattern at birth. When supported in an erect position with feet on the table a child may make walking movements immediately after birth. A delay in development of these reciprocal movements may be the first sign of brain damage. Such delay is much commoner in pyramidal tract disease. In the absence of evidence of mental retardation, failure of reciprocation to appear by 3 months of age may be considered presumptive evidence of cerebral palsy.

*Head Support and Motion.*—Normally an infant in the prone position is able to lift its head within a few weeks after birth, and in the supine position is able to do so by the age of 12 weeks. Inability to support the head in the prone position at 6 to 12 weeks should cause suspicion of organic brain damage. Head drop in the supine position after the age of 4 months, even in the presence of good extension power in the prone position, is suggestive of cerebral palsy. Back and forth flopping motions of the head or rolling head motions in an erect attitude may also be signs of organic brain disease.

*Prehensile Activities.*—Upper extremity function may be tested at an early age by observing the manner in which a child responds to objects in a predetermined testing situation. Gesell and Amatruda,[2] and others have described what a normal child will do with objects placed before him or into his hand; for example, an 8-week-old child sitting in a high chair will retain an object placed in its hands for one to two seconds before dropping it; at the age of 20 weeks he will reach for and grasp objects such as rattles and cubes with one or both hands; at 40 weeks he is able to transfer a cube from hand to hand and to hold two cubes as if to match them; at 1 year he attempts to place one cube upon another, grasp small objects with almost adult precision, and release objects on request.

Cerebral palsied infants with upper extremity involvement may be long delayed in development of prehensile skills, because of lack of voluntary movement, incoordination, or a persistence of hypertonic attitudes of the fingers and wrists. Normally an infant maintains his fingers in a clenched position for the first 8 to 12 weeks. Thereafter, they are held extended or slightly flexed, and on attempted grasp the fingers gradually flex as they approach an object. In a spastic infant the hand may remain clenched even as the object is being fingered, and his attempts to open the hand may be jerky and incomplete. In athetoid infants the objects may be approached with an extended or flexed wrist and with clenched or extended fingers. The greatest difficulty may be in grasping, rather than in releasing, objects. A spastic child will reach and grasp with characteristically slow, measured, and awkward movements, but he will generally move the hand in a straight line toward the object. An athetoid child will reach and grasp in a rapid, erratic, excited manner, with many tremors and undulations of the extremity as the object is approached. Frequently the object is missed entirely.

In hemiplegic infants the difference in motor ability between the two hands may be obvious within the first few months of life. It may be demonstrated by placing a towel over the infant's face. Normally he will quickly attempt to remove it with one or both hands. By restraining one hand, the functional ability of the other hand can be observed as the child attempts to displace the towel from his face.

Upon careful observation it may be noted that the child with motor involvement of the upper extremities will display eagerness and determination to perform a task with his hands and, if helped to accomplish it, will manifest satisfaction. He may "grasp with his eyes" before he is able to grasp with his hands. The interest shown in reaching for objects and the concentration and perseverance displayed in performing test acts are of importance in differentiating between poor performance due to motor disability and that due to mental retardation.

*Sitting, Standing, Crawling, and Walking.*—The normal rate and pattern of development of sitting, crawling, creeping, standing, and walking have been previously described by others in great detail. A knowledge of such normal functional behavior in infants is necessary for physicians or psychologists testing children for motor disability or mental retardation. At the age of 24 weeks a normal baby can roll from the supine to the prone position. At 28 weeks he begins to sit alone, erecting his trunk for a brief moment and then leaning forward onto his outstretched palms. At 40 weeks an infant sits unaided with good postural control and is able to go from the prone to the sitting position; at this age he is able to get up on his hands and knees, to creep forward, to pull himself to his feet while holding onto a railing, and to support his his entire weight on his feet when his hands are held. At 12 months a baby can walk with one hand held. At 15 months he can walk alone and attain the standing position unaided.

An infant with cerebral palsy may be completely unable to perform any of the above functions, may be late in performing them, or may perform them in a manner characteristic of the type of motor disability.

Sitting may be delayed for many months in mild cases and for years in severe cases. It may be characterized by a persistence of the fetal flexion attitude, by extensor spasms of the back muscles, increase of athetoid motions, or increase in muscle tonus. Balance is easily upset. In older children "knee-sitting" commonly occurs and results in typical deformities of the lower extremities.

Crawling and creeping are also delayed and may be accomplished by alternating frog-like motions of the arms and legs, rather than by reciprocal motions. This is commoner in spastic children. An infant with severe hand involvement, especially the athetoid child, may skip the crawling and creeping stage and go directly from sitting to walking. Occasionally, a severely disabled child may first learn to locomote on his back, using his legs to push his head and trunk forward.

Standing and walking are usually delayed in children with cerebral palsy. In a mild spastic hemiplegic child of normal intelligence they may be delayed only two to four months. A mildly athetoid child may walk with only 6 to 12 months' delay. In a moderately severe spastic paraplegia walking may be delayed one to two years. A severely athetoid child may not be able to walk unaided until the age of 6 or 7 years, if ever. In spastic children attempts to walk are characterized by scissoring and flexion at the hips, flexion at the knees, and equinus at the ankles. The movements are initiated slowly and performed awkwardly. In athetoid children attempts to walk may cause an increase in muscle tension or in athetoid movements of the lower extremities, with an overflow of motion to the trunk and upper extremities.

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[2] Gesell, A. L., and Amatruda, C. S.: Developmental Diagnosis: Normal and Abnormal Child Development, Clinical Methods and Pediatric Applications, ed. 2, New York, Paul B. Hoeber, Inc., 1947.

The pattern of functional deformities in the spastic child maintains a rather constant picture in a given case, varying little from step to step and from day to day. In contrast to this, the athetoid child usually shows noticeable daily variations in the pattern of functional deformities. Ankle valgus or varus, knee flexion or extension, and hip adduction or abduction may be observed in the same athetoid child on repeated examinations. In quadriplegic children there is loss of arm reciprocation in walking.

The degree of functional retardation or disability associated with cerebral palsy is more dependent on the severity than on the type of the motor disability. A mildly athetoid child may progress more rapidly than a more severely spastic child, although a spastic child usually develops more functional ability in an extremity than does an athetoid child having a comparable degree of involvement. The spastic child usually improves more rapidly with therapy.

*Tongue Motions.*—Observation of tongue motions in an infant may provide one or more pathognomonic signs of cerebral palsy. Forward pushing motion of the tongue (elicited by putting a solid object into an infant's mouth), which is normally reversed at the ages of 4 to 6 weeks, may persist for months or years, especially in athetoid children. There may be difficulty in lifting the tip of the tongue and in performing lateral tongue motions. The child should be observed when crying to see if the tongue tip is normally lifted and cupped. If an object is placed against the mucous membrane of the cheek, a normal child will initiate a movement of the tongue to that side. In cerebral palsied children there may be no such lateral tongue motions. The tongue may be held in a retracted state. A stretch reflex in the tongue, reported by other investigators, has not been observed in our cases.

*Eye Movements.*—Examination of the extrinsic muscles of the eye may produce presumptive evidence of cerebral palsy. Strabismus, nystagmus, and paralysis of gaze (loss of conjugate movements) are likely to occur with organic brain damage. Strabismus associated with cerebral palsy is characterized by an extreme variability in the degree of squint observed in a patient on repeated examination. Internal strabismus is much commoner than the external form. Nystagmus associated with poor vision caused by optic atrophy or congenital eye defects is usually of the pendular type with no slow or rapid components, but with movements that are coarse, irregular, and "searching" in nature. Nystagmus occurring secondarily to organic brain damage is usually described as jerky, with slow and fast components.

Paralysis of gaze, especially of supravergence and infravergence, is frequently associated with the Rh type of athetosis. These motions may, however, be elicited by "synkinetic" movements, which may be defined as involuntary movements or reinforcement of voluntary muscle action due to a voluntary movement of another muscle or in response to a reflex. In looking up or down, these patients will usually extend or flex the neck. In following objects, an infant with cerebral palsy may also have obvious difficulty with his associated head and neck movements, and he may display a "surprised" look, with elevation of the eyebrows and eyelids.

*Contractures.*—Contractures due to muscle action rarely occur before the age of 1 year, but they may occur earlier in cases of severe spasticity; later, they are commoner in spasticity than in athetosis. The flexors of the ankles, hips, and knees, and the hip adductors are most frequently involved. Contractures in the newborn infant may indicate arthrogryposis multiplex congenita.

*Atrophy.*—Severe atrophy of muscles due to cerebral palsy is rare during infancy. If present in one extremity, another type of lesion such as Erb's palsy or poliomyelitis must be considered. In infants with generalized muscle atrophy a diagnosis of amytonia congenita must be considered; however, in infants with congenital hemiplegia there may be a grossly obvious lack of extremity development, rather than atrophy, of all tissues of the involved limbs. Atrophy and shortening are usually more noticeable in the upper than in the lower extremity.

*Atonic Muscles.*—A spastic or athetoid child may have a predominance of atonic or hypotonic muscles, and a subclassification such as atonic spastic diplegia and atonic athetoid quadriplegia can be made. The hypotonia may be due to a cerebellar lesion or a cerebellar tract lesion superimposed on the pyramidal tract or extrapyramidal tract involvement. Atonic spasticity is frequently diagnosed as muscular atrophy (amyotonia congenita) or muscular dystrophy. In contrast to patients with the latter diseases, however, the atonic spastic patient usually has normal or increased deep-tendon and stretch reflexes and has a greater degree of muscle power on voluntary contraction than one would expect from examination of the resting muscle. Typically, on lifting a patient with amyotonia congenita by the armpits, the lower extremities remain extended, whereas on lifting an atonic spastic patient in the same way, the hip and knee points usually assume a flexion attitude.

Isolated muscles or muscle groups that are weak or that have lost all voluntary power may be found. These are seen most frequently in spastic patients, but do occur in athetoid patients, and have been variously termed "0 C." (zero cerebral), flaccid, or mentally alienated muscles. They are found most frequently in direct opposition to the more severely spastic muscles and are usually found to be overstretched by contractions or contractures in the more powerful antagonists. They are not truly flaccid muscles, for motion can be elicited in them by specific reflex or synkinetic movements designed to innervate or reinforce these muscles; e. g., resisted thigh flexion may elicit contraction of the anterior tibial muscle. This muscle flaccidity may be due to supranuclear lesions similar to those responsible for loss of lateral tongue motions or paralysis of gaze.

## REFLEXES

The normal infant shows certain characteristic reflex actions in the first months of life. Among these are the deep tendon reflexes, tonic neck reflexes, the Moro reflex, sucking and rooting reflexes, and the grasp reflex. Absence, persistence, or perseveration of these reflexes may be the earliest evidence of organic brain disease.

*Deep Tendon Reflexes.*—Deep tendon reflexes are usually normal in athetoid infants and are increased in spastic infants. It should be noted, however, that neurological signs, even in a normal infant, are variable and unpredictable. A normal child may have increased deep tendon reflexes as a result of reinforcement, especially when frightened or crying. To be of value the examination must be performed while the child is relaxed. This is best accomplished by laying the child on its abdomen with its knees flexed. Normally knee jerks are not elicited under these conditions. If present they are probably exaggerated.

*Superficial Reflexes.*—Superficial reflexes are usually present in all forms of cerebral palsy and are of little diagnostic significance.

*Tonic Neck Reflexes.*—Tonic neck reflexes are elicited by rotating or inclining the head first toward one shoulder then toward the other. Extension of the limbs on the side of the body toward which the jaw is inclined and flexion of the limbs on the opposite side constitute a positive sign. In a normal child this sign becomes negative before the 16th week of life. Bilaterally positive tonic reflexes after this age are indicative of organic brain damage. Inequality between the right and left tonic reflexes may be due to asymmetric brain damage. When brain damage is severe, these reflexes may persist into adult life (Magnus-de Kleijn phenomenon).

*Moro Reflex.*—The Moro or startle reflex may be elicited by striking the table on which the baby lies, by startling him with a loud noise, or by sudden release of his outstretched arms. Normally the arms are thrown outward and then are brought toward each other in an embracing motion. The hands are fanned out at first and then clenched tightly. The motions are usually associated with a cry due to fright. The Moro reflex usually disappears by the 16th week of life. Its persistence indicates organic brain damage. It may be absent with severe increase of intracranial pressure or severe damage in the subcortical brain.

*Rooting and Sucking Reflexes.*—The rooting and sucking reflexes can be discussed together. A normal infant, when one cheek is touched, will turn its head toward the touched side and make sucking motions. These reactions are present from birth. Failure to elicit the rooting and sucking reflexes, and persistence of tongue pushing motions after six to eight weeks of life are presumptive signs of intracranial damage or developmental defect.

*Grasp Reflex.*—Normally an infant maintains his fingers in a clenched position up to the age of 8 to 12 weeks. If the examiner inserts a finger into each fist of the infant he can often lift it from the bed by this method because of reflex reinforcement of the infant's finger flexion. With abnormal motor function caused by organic brain disease the clenched fist reflex may persist, so that the child may be lifted in the above fashion for many additional months or even years. Other infants with motor involvement, however, may have a poor grasp reflex, as well as a poor release mechanism. The grasp reflex may be absent from birth.

*Pathological Reflexes.*—Pathological reflexes, such as the Babinski reflex, are not significant in infants, presumably because of incomplete myelinization of the pyramidal tract. Their presence in an infant prior to the age of 18 months is not necessarily indicative of organic brain damage.

### HEARING AND VISION

Hearing and vision may be tested in a crude fashion by eliciting blink reflexes with visual and auditory stimuli. The absence of these reflexes may indicate the presence of blindness or deafness, both of which are commoner in cerebral palsied children than in otherwise normal children. However, they may be absent also in patients with severe mental retardation. From three to six months after birth an infant with normal vision and control of eye movements will fixate on a light held before him and will follow the course of the light with a steady fixation. An infant with impaired vision will display an unsteady, wobbly fixation when tested in a similar way. A totally blind infant will neither fixate upon nor follow the course of a light.

A child may present a picture of deafness but have normal hearing associated with a loss of auditory perception. The differential diagnosis between true deafness and auditory aphasia may be made by special tests (e. g., arousal tests with electroencephalography, conditioning tests, and skin resistance tests).

### DIFFERENTIAL DIAGNOSIS

In the differential diagnosis of organic brain disease in infancy all the following possibilities must be considered:

A. Simple mental retardation.

B. Conditions which may produce the clinical picture of the "hypertonic" infant, such as food allergies, gastrointestinal anomalies, and painful conditions of the extremities.

C. Meningitis and encephalitis—acute and chronic forms.

D. Familial degenerative diseases, such as Tay-Sachs and amaurotic familial idiocy.

E. Endocrine dysfunctions, including hypothyroidism.

F. Isolated sensory defects such as deafness and blindness.

G. Poliomyelitis.

H. Erb's palsy.

I. Arthrogryposis multiplex congenita.

J. Amyotonia congenita.

K. Brain tumor.

L. Debilitation and malnutrition, which may temporarily impede both mental and physical development.

M. Postconvulsive states.

Complete examination of a child suspected of having organic brain disease may require any or all of the following diagnostic procedures:

1. *X-rays of the skull:* For skull fractures, increased intracranial pressure, and calcification, as in toxoplasmosis.

2. *X-rays of long bones:* For bone age, plumbism, and developmental defects.

3. *Complete blood studies* (often on parents as well as on child): May include studies of Rh factor, cholesterol, proteins, calcium, and phosphorus; smears for

basophilic stippling and serologic tests for chronic infections like syphilis and toxoplasmosis.

4. *Spinal or subdural puncture* (in selected cases): For central nervous system infections, increased pressure and subarachnoid block or hemorrhage.

5. *Eyeground examination:* For choked discs, chorioditis, retinal changes, and anomalies.

6. *Electroencephalogram:* May be of value after age of three months in showing paroxysmal patterns, rhythmic disturbances, and asymmetries.

7. *Pneumoencephalogram* (in selected cases): Correlations between clinical and pneumoencephalographic findings are not too great. However, it is of value in corroborating a diagnosis of subdural hematoma, marked cortical atrophy, neoplasms, internal hydrocephalus, and certain anomalies of the brain.

8. *Psychological evaluation:* To determine functional abilities and performance levels of the patient.

## MENTAL RETARDATION AND CEREBRAL PALSY

The incidence of sensory defects and mental retardation is greater among cerebral palsied persons than among the general population. Mental retardation without motor involvement may cause a delay in many phases of maturation and motor development, and thus simulate the clinical picture of cerebral palsy. Mental deficiency may be classed as (1) undifferentiated, (2) associated with organic brain disease, or (3) associated with organic brain disease and cerebral palsy.

Our experience, based on a study of 1,000 consecutive cases of cerebral palsy seen in the children's neurology clinic at the Cook County Hospital and in private practice, has indicated that over 35% of all children with cerebral palsy have an appreciable degree of mental retardation, i. e., an intelligence quotient below 70. Mental retardation is approximately twice as common in spastic children (50%) as in athetoid children (25%). Also, there is a high correlation between educability and convulsions in these children. Only 45% of cerebral palsied children with convulsive symptoms were found to be ucable, whereas 75% of those without convulsions re classed as educable. It should be noted that cerebral lsied children who are rated as educable may have some degree of intellectual impairment. Without their brain damage, their intelligence quotients might have been higher. This is indicated by the fact that the average intelligence quotient in educable cerebral palsied children is below 100 and is generally less than that of their unaffected siblings.

Standard psychological tests frequently fail to give a true picture of intelligence in children with cerebral palsy because of the associated auditory and visual defects, emotional instability, speech and perceptive difficulties, and the lack of stimulation, motivation, and experience that are often found in children with brain injuries.

The most satisfactory tests for intelligence in infants with cerebral palsy are those based on developmental rates. Tests devised by Gesell and Amatruda,[2] modifications of these, and other tests, such as the Psyche-Cattell, the Vineland Social Maturity Scale, and the Kuhlman test, are well suited for this purpose; they are designed to determine the degrees of motor, social, language, and adaptive behavior development. As a general rule the normal child exhibits parallel progressive rates of development in all four spheres. The same is true of the child with undifferentiated mental deficiency. However, in mental retardation due to organic brain disease the rates of development in the four spheres are usually uneven and disproportionate. Such disparity should lead one to suspect organic brain disease, and, possibly, associated cerebral palsy.

Children with undifferentiated mental retardation are generally normal in appearance and stature, except in cases of Mongolism or multiple congenital anomalies. These are usually good babies, easy to care for and placid; they cry little, sleep well, and have few feeding problems. Their developmental tests show equal retardation in all spheres (speech, social, motor, and adaptive) quantitatively proportionate to the intellectual defect present. These children display little interest in performance tests and little pleasure at being able to perform such tests. Performance of motor tests may be characterized by a clumsiness that might be considered normal in a child of younger age. They may show a failure of or a delay in response to all forms of stimuli (auditory, visual, and pain-producing), and they may fail to respond to parents or environment. Facial expression in such a child is typically apathetic; he fails to smile or has an undifferentiated smile in response to various pleasant stimuli at the age when differentiated responses are normal. In these children the rate of conditioning is slow. There is no evidence of muscle weakness or aberration of muscle function. There is no spasticity, athetosis, or rigidity. The gait may appear ataxic, but the unsteadiness is primarily the result of lack of skill or balance and resembles the gait of a normal child just learning to walk. Convulsions are no more frequent in these children than they are in normal children.

If *mental retardation is associated with organic brain disease without cerebral palsy* a higher incidence of convulsive episodes and an increased percentage of feeding and behavior problems usually occur. The developmental tests may show uneven performance, although the discrepancies and the relative delay in motor function are not so great as those seen in cerebral palsy.

The diagnosis of mental retardation in the presence of cerebral palsy is difficult and can be made only after careful evaluation of the signs and symptoms referrable to motor dysfunction. Only experience can lead to proper evaluation of the developmental rate in the presence of motor involvement. The expected retardation in motor or speech development must be estimated in terms of the observable clinical motor defects; retardation beyond this estimate may then be attributed to associated mental retardation; for instance, in a child with spastic paraplegia speech development is usually not delayed. The occurrence of such delay should suggest associated mental deficiency.

A child with spastic paraplegia may not be able to walk at a normal age but will have normal hand function. Even though unable to walk he may be able to use a tricycle at the normal age of about 24 months. In contrast to this, a child who is mentally defective and is, therefore, unable to walk will usually be unable to ride a tricycle at the normal age. In hemiplegic children there is usually only slight delay in walking, especially in milder cases. The occurrence of a long delay in walking (over six months) in a child with mild hemiplegia is indicative of concomitant mental retardation.

A child with cerebral palsy without mental retardation develops normally in all motor functions except those handicapped by his disability.

A spastic or athetoid quadriplegic child may not be able to reach for or grasp objects, because of poor muscle control; nevertheless, he will usually exhibit some concentrated effort, eagerness, and desire to perform these tasks. In contrast to this, a child with simple mental deficiency, without cerebral palsy, will reveal neither ability to perform an act nor desire to attempt it. One should consider intent, desire, and determination, as well as achievement, in assessing the condition of these children.

### SUMMARY AND CONCLUSIONS

The diagnosis of cerebral palsy can be made in most cases before the age of 6 months and in almost all cases by the age of 1 year. The early diagnosis of cerebral palsy is important for initiating appropriate therapy in infancy and for providing an earlier, more reliable developmental prognosis.

The diagnosis of cerebral palsy in infancy can be made more readily if the physician is aware of the following factors: (*a*) relationship between etiological factors and types of cerebral palsy; (*b*) developmental rates and patterns in normal and abnormal children; (*c*) frequency of occurrence of associated defects and specific symptoms; (*d*) specific tests designed to elicit abnormal muscle properties and motor functions; and (*e*) the differential diagnosis between mental retardation and cerebral palsy.

116 S. Michigan Ave. (Dr. Barnett).

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# FACTORS RELATING TO THE DISTRIBUTION OF PHYSICIANS

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Approximately 30 years ago, soon after taking over the deanship of Syracuse University College of Medicine, I became interested in what became of the graduates of our schools after graduation. Beginning with the graduates of 1915, I initiated a study of every fifth class. Insofar as possible, studies were made for these classes of the location and nature of practice of the graduates of all the medical colleges of the United States and Canada six years after graduation. The studies were based on questionnaires sent to every physician.

The results of studies of the graduates of 1915, 1920, 1925, and 1930 have been published as a series of reports in the *Journal of the Association of American Medical Colleges*. Because of the impact of World War II on the physicians of the country, it was considered unwise to attempt in 1941 a study of the graduates of 1935 or in 1946 a study of the graduates of 1940. Hence, it was not until 1950—fortunately before the Korean War started—that a study of the graduates in these two years was undertaken. To date, the combined studies have involved a total of 24,934 questionnaires, of which 72.1% were filled out and returned.

The present study was supported by a grant from the United States Public Health Service. The studies deal with a variety of factors relating to medical education and the practice of medicine, such as age at graduation, internship and residency training, location for practice, nature of practice, specialization, specialty board certification, and full-time and part-time salaried positions.

The questionnaires were returned by 65.7% of the graduates of 1935, and 72.3% of the 1940 graduates of American medical colleges. Each physician who did not return his questionnaire was looked up in the 1950 edition of the American Medical Directory, and the information given there was used to determine how representative the questionnaires returned could be considered. The results appeared to warrant the general acceptance of the tabulations from the questionnaires returned.

I believed that it might be of interest if I presented as a preliminary report a few of the over-all findings of the present study relating to the distribution of graduates. It is hoped that a full report of all aspects of the study can be published in the near future.

The distribution of physicians is something like the weather. There is much talk about it and it has appeared that there is little we can do about it. Efforts to "seed the clouds" over arid areas seem to offer little promise. It is obvious that there are many factors involved in the location of physicians in this country. Although some of these are measurable, others are so personal and varied that it appears to be hopeless to attempt to measure them. In this preliminary report, I will present certain data relating to the group as a whole. In the final report data will also be presented for the individual schools.

Table 1 shows the distribution of the graduates in the country in which they are practicing. It indicates that almost all of the graduates of American medical colleges practice in the continental United States, as do approximately 25% of the graduates of the Canadian medical colleges. Half of the graduates of 1935 and three-fifths of the graduates of 1940 of the Canadian colleges practicing in the United States lived in the United States before entering medical college. At the same time it should be recognized that the Canadian colleges as a group in their production of physicians have served as the equivalent of another medical college in the United States. Their contributions in 1930, 1935, and 1940 were respectively 66, 58, and 73 graduates.

The distribution of the graduates practicing in the various states of the United States in relation to population distribution and per capita income was tabulated. In an effort to minimize the criticism of adhering to state lines

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Read before the Forty-Eighth Annual Congress on Medical Education and Licensure, Chicago, Feb. 11, 1952.

Miss Marion E. Altenderfer of the United States Public Health Service analyzed the questionnaires and prepared the tables.

as well as to simplify the presentation at this time, I am presenting these data in terms of the recognized nine geographic regions of the states (table 2). While many other factors are involved, the table appears to indicate that, in general, the regions of the country with higher per capita incomes tend to attract a percentage of graduates equal to, or greater than, the percentage of the entire population that resides in the area. Those with lower per capita incomes fail to attract their full quota on a population basis. More detailed study of the individual states indicates that, depending somewhat on their per capita incomes, states in which there are no medical colleges fare about as well in the distribution of graduates on a population basis as the states with one or more medical colleges.

TABLE 1.—*Percentage Distribution of 1925, 1930, 1935, and 1940 Graduates of American and Canadian Medical Colleges by Place of Practice*

| | American Colleges | | | | Canadian Colleges | | | |
|---|---|---|---|---|---|---|---|---|
| Place of Practice | 1925 | 1930 | 1935 | 1940 | 1925 | 1930 | 1935 | 1940 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Continental U. S. | 99.0 | 98.1 | 98.6 | 98.5 | 39.0 | 24.3 | 24.5 | 24.8 |
| Canada | * | 0.4 | 0.1 | * | 59.6 | 71.3 | 73.4 | 73.2 |
| U. S. Territories | 0.8 | 0.5 | 0.8 | 0.7 | 0.4 | ..... | ..... | ..... |
| Other | 0.1 | 1.0 | 0.5 | 0.7 | 1.0 | 4.4 | 2.1 | 2.0 |

* Less than 0.1%.

The size of the communities in which recent graduates locate has attracted considerable attention. Table 3 shows the percentage distribution of the graduates of 1930, 1935, and 1940 in private practice by the size of the communities in which they are located. Over the period covered by the study there appears to have been a slight decrease in the proportion of graduates practicing in cities of 500,000 or more population and a slight increase for cities of 100,000 to 500,000 population. There has been an increase in the percentage locating in communities of 25,000 to 100,000 population. There has been a definite decrease in the proportion practicing in communities of less than 5,000 population.

TABLE 2.—*Percentage Distribution of 1935 and 1940 Medical College Graduates Practicing in Each Region, Percentage of 1950 Population in Region, and per Capita Income*

| | Graduates, % | | Population in | Per Capita Income, |
|---|---|---|---|---|
| Region | 1935 | 1940 | 1950 | 1950 |
| United States | 100.0 | 100.0 | 100.0 | $1,436 |
| Middle Atlantic | 26.6 | 21.8 | 20.0 | 1,727 |
| Pacific | 12.2 | 14.8 | 9.6 | 1,710 |
| East North Central | 19.2 | 18.2 | 20.2 | 1,603 |
| New England | 6.8 | 8.1 | 6.2 | 1,558 |
| West North Central | 7.3 | 8.4 | 9.3 | 1,387 |
| Mountain | 4.3 | 3.5 | 3.4 | 1,362 |
| West South Central | 6.8 | 7.8 | 9.6 | 1,145 |
| South Atlantic | 12.9 | 12.7 | 14.1 | 1,139 |
| East South Central | 3.9 | 4.7 | 7.6 | 867 |

As might be expected, there was considerable variation in the proportion of graduates of the different medical schools practicing in the smaller communities. For example only 5% of the graduates of Johns Hopkins University School of Medicine were practicing in communities of less than 10,000 population as contrasted with 50% of the graduates of the University of Vermont College of Medicine.

The proportion of graduates practicing in the same city in which the medical college they attended is located has remained relatively constant for the country as a whole. The proportions of the 1930, 1935, and 1940 graduates who practice in the same city as their medical college were 18.8%, 19.6%, and 18.5%, respectively. However, there are not only marked differences between the distribution of graduates of the different colleges, but also definite and marked changes in trend on the part of the graduates of certain medical colleges. For example, there has occurred a marked progressive decrease in the proportion of the graduates of Columbia, Cornell, Long Island, New York Medical College, New York University, Marquette, and Johns Hopkins who practice in the same city in which the school from which they graduated is located. The studies show, however, that New York University School of Medicine still had the highest proportion of graduates in 1930, 1935, and 1940, who practice in the city in which the college is located or 77%, 58%, and 51%, respectively.

TABLE 3.—*Percentage Distribution of 1930, 1935, and 1940 Graduates of American Medical Colleges in Private Practice by Size of Community*

| | Year of Graduation | | |
|---|---|---|---|
| Size of Community | 1930 | 1935 | 1940 |
| Total | 100.0 | 100.0 | 100.0 |
| 500,000 and over | 28.8 | 25.6 | 24.2 |
| 100,000-499,999 | 16.1 | 20.8 | 21.5 |
| 50,000-99,999 | 6.8 | 9.7 | 10.9 |
| 25,000-49,999 | 5.6 | 9.3 | 11.9 |
| 10,000-24,999 | 9.2 | 11.6 | 10.9 |
| 5,000-9,999 | 7.5 | 6.7 | 6.6 |
| 2,500-4,999 | 25.6* | 5.0 | 4.6 |
| Under 2,500 | ..... | 10.7 | 8.8 |
| Unknown | 0.4 | 0.6 | 0.6 |

* This is the total for all communities of less than 4,999.

TABLE 4.—*Percentages of 1930, 1935, and 1940 Graduates of Public and Private American Medical Colleges Practicing in Same State as Medical College Attended*

| | Year of Graduation | | |
|---|---|---|---|
| Form of Medical College Control | 1930 | 1935 | 1940 |
| Total | 50.5 | 49.7 | 44.3 |
| Public | 49.3 | 53.6 | 50.4 |
| Private | 51.2 | 47.5 | 40.6 |

As the studies have progressed, there has been an apparent decrease in the proportion of graduates who are practicing in the same state as the one in which their medical college is located. Table 4 gives the percentage for the graduates of the publicly and privately supported medical colleges, which indicate that the decrease can be attributed to the graduates of the privately supported schools. In extending the location of the graduates in relation to the location of the medical college to a broader area, our tabulations show that 62.6% of the 1935 graduates and 57.5% of the graduates of 1940 practice in the same region as the one in which their college is located.

In the study of the 1935 and 1940 graduates the relationship of the previous residence of the student to the location of the medical college attended and the ultimate place of practice was studied. Table 5 shows for the publicly and privately supported medical colleges the percentage of graduates who lived in the same city, the same state, and the same region as their college before entering medical college.

TABLE 5.—*Percentage of 1935 and 1940 Graduates of American Medical Colleges Whose Prior Residence was in the Same City, Same State, and Same Region as the College, by Form of Medical College Control*

| | Percentage Whose Prior Residence Was in | | |
|---|---|---|---|
| Form of Medical College Control | Same City as College | Same State as College | Same Division as College |
| Total | 25.7 | 60.5 | 71.5 |
| Public | 25.7 | 78.1 | 85.4 |
| Private | 25.7 | 50.3 | 63.4 |

TABLE 6.—*Percentage Distribution of 1935 and 1940 Graduates of American Medical Colleges in Private Practice in Various Size Communities, by Size of Community of Prior Residence*

| | | Size of Community of Practice | | | | | |
|---|---|---|---|---|---|---|---|
| Size of Community of Prior Residence | All Sizes | 500,000 and Over | 100,000-499,999 | 50,000-99,999 | 10,000-49,999 | 2,500-9,999 | Under 2,500 |
| All sizes | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| 500,000 and over | 26.8 | 64.6 | 12.1 | 16.4 | 15.6 | 13.3 | 15.3 |
| 100,000-499,999 | 16.9 | 6.8 | 46.8 | 7.4 | 10.5 | 10.5 | 10.7 |
| 50,000-99,999 | 7.9 | 4.3 | 5.0 | 35.0 | 4.9 | 4.4 | 5.9 |
| 10,000-49,999 | 18 0 | 9.0 | 12.7 | 14.1 | 39.1 | 14.6 | 14.3 |
| 2,500-9,999 | 11.2 | 4.5 | 8.0 | 9.7 | 10.1 | 33.9 | 13.0 |
| Under 2,500 | 12.5 | 4.4 | 8.8 | 11.4 | 13.7 | 16.7 | 35.6 |

It is interesting that the percentage who lived in the same city as the college attended is identical for the publicly and privately supported colleges. As would be expected, the percentage who lived in the same state as the college is much higher for the publicly supported schools. With the increased residency requirements for admission recently enforced by many of the state-supported medical colleges, the percentage of state residents graduating in the future from this group of colleges will far exceed those for 1935 and 1940.

Table 6 shows the percentage distribution of graduates of American medical colleges in private practice practicing in the various size communities by the size of community of residence before entering medical college. It is obvious that, for each size of community of practice, a far larger percentage of graduates had their prior residence in a similar size community than in any other size community.

Table 7 deals with the same relation between the size of prior residence and the size of the community of practice from a different viewpoint. This table shows the percentage distribution of those whose prior residences were in the various size communities. It appears to me that the striking findings in this table are that 45.9% of the graduates whose prior residences were in communities of from 2,500 to 10,000 population are practicing in communities of less than 10,000, and that 27.7% of those whose prior residences were in communities of less than 2,500 have returned to communities of this size to practice. These findings coincide with the results of a study of 545 graduates of the University of Minnesota School of Medicine reported at the 1951 Congress on Medical Education and Hospitals by Dean Harold Diehl.

TABLE 7.—*Percentage Distribution of 1935 and 1940 Graduates of American Medical Colleges in Private Practice Whose Prior Residence Was in Various Size Communities, by Size of Community of Practice*

| | | Size of Community of Practice | | | | | |
|---|---|---|---|---|---|---|---|
| Size of Community of Prior Residence | All Sizes | 500,000 and Over | 100,000-499,999 | 50,000-99,999 | 10,000-49,999 | 2,500-9,999 | Under 2,500 |
| *All sizes* | 100.0 | 24.9 | 21.1 | 10.3 | 21.9 | 11.5 | 9.7 |
| 500,000 and over | 100.0 | 59.9 | 9.6 | 6.3 | 12.7 | 5.7 | 5.5 |
| 100,000-499,999 | 100.0 | 10.0 | 58.5 | 4.5 | 13.6 | 7.1 | 6.2 |
| 50,000-99,999 | 100.0 | 13.4 | 13.4 | 45.7 | 13.6 | 6.4 | 7.3 |
| 10,000-49,999 | 100.0 | 12.5 | 14.9 | 8.0 | 47.5 | 9.3 | 7.7 |
| 2,500-9,999 | 100.0 | 10.1 | 15.1 | 9.0 | 19.7 | 34.6 | 11.3 |
| Under 2,500 | 100.0 | 8.8 | 14.8 | 9.0 | 23.1 | 14.8 | 27.7 |

Table 8 shows the percentages of 1935 and 1940 graduates of public and private American medical colleges in private practice who are practicing in communities of less than 10,000 population, and the percentages whose prior residence was in communities of less than 10,000. A definitely larger proportion of graduates of publicly supported colleges are in private practice in communities of less than 10,000 as well as a larger proportion of those whose prior residence was in communities of less than 10,000.

TABLE 8.—*Percentage of 1935 and 1940 Graduates of American Medical Colleges in Private Practice and Whose Prior Residence Was in Communities of less than 10,000 Population*

| | Percentage of Private Practitioners | |
|---|---|---|
| Form of Medical College Control | Practicing in Communities Under 10,000 | Prior Residence in Communities Under 10,000 |
| Total | 20.5 | 24.3 |
| Public | 25.1 | 31.5 |
| Private | 17.8 | 20.1 |

In an effort to evaluate the relative importance of residence before entering medical college and the location of the medical college in determining the location for practice, table 9 was developed. This tabulation appears to indicate definitely that previous residence is a more potent factor than location of the medical college in determining the ultimate location of the graduates.

Although specific information in regard to the location of internship was not requested in the questionnaires, more than 1,000 graduates provided such information. This offered an opportunity to study for this group the relationship between the place of practice, the location of internship, the college of graduation, and prior residence (table 10). This table is somewhat complicated, and at first sight the columns do not appear to add up to 100%. However, the various combinations of relationships require a duplication of certain figures in each column. If such duplications are eliminated, the accuracy of the figures becomes apparent. This tabulation appears to indicate that prior residence either alone or in combination with location of medical college or place of internship is a more potent influence in determining the place of practice than either of the other two factors.

## SUMMARY

Certain data relating to trends in the distribution of physicians have been presented. There are undoubtedly many factors involved in the choice of location for practice by the graduates of our medical colleges. The data here presented appear to indicate that economic factors are of some influence. Although not presented in detail in this preliminary report, the variation in the distribution of the graduates of the individual colleges suggests that the nature of the educational program and the environment in which it is conducted are factors that influence the distribution of the graduates.

TABLE 9.—*Distribution of 1935 and 1940 Medical College Graduates in Relation to Place of Prior Residence and Location of Medical College, by Relation Between Location of Medical College and Place of Practice*

| Relation of Place of Prior Residence and Location of College | Total Number of Graduates | Percentage Distribution of Graduates in Relation to Location of Medical College and Place of Practice | | | | | |
|---|---|---|---|---|---|---|---|
| | | Total | Same City | Other City in Same State or Province | Other State in Same Region | Other Region | Other Country |
| Total | 6,756 | 100.0 | 19.3 | 28.0 | 13.6 | 35.6 | 3.1 |
| Same city | 1,804 | 100.0 | 48.8 | 17.4 | 8.4 | 22.1 | 3.1 |
| Other city in same state or province | 2,321 | 100.0 | 10.4 | 58.7 | 7.9 | 21.5 | 1.2 |
| Other state in same region | 773 | 100.0 | 7.2 | 9.6 | 62.1 | 19.3 | 1.3 |
| Other region | 1,637 | 100.0 | 6.5 | 6.5 | 5.4 | 80.4 | 0.9 |
| Other country | 122 | 100.0 | 2.5 | 4.1 | 3.3 | 7.4 | 82.0 |
| Not specified | 99 | 100.0 | 19.2 | 32.3 | 10.1 | 36.4 | 2.0 |

Although there is evidence that the location of the medical college attended and the place of internship may be influential factors, it is apparent that residence before admission to medical college is in general the most potent factor in determining the size of the communities in which the graduates of our medical colleges locate.

These findings suggest that an increase in the number of students from smaller communities enrolled by the medical colleges would probably result in an increased number of practitioners for the smaller communities of the country.

TABLE 10.—*Percentage Distribution of 1935 and 1940 Graduates of American Medical Colleges, by Relationship Between Place of Practice and Places of Internship, Medical College, and Prior Residence*

| Relationship | City | | State | |
|---|---|---|---|---|
| | 1935 | 1940 | 1935 | 1940 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 |
| Practicing in same place as internship | 22.2 | 22.2 | 49.6 | 43.7 |
| Medical college and prior residence also in same place | 8.7 | 9.7 | 33.4 | 25.9 |
| Medical college also in same place | 4.4 | 4.1 | 5.0 | 3.9 |
| Prior residence also in same place | 4.4 | 3.3 | 6.8 | 6.6 |
| Internship alone in same place | 4.6 | 5.0 | 4.4 | 7.2 |
| Practicing in same place as medical college | 18.5 | 18.6 | 49.8 | 41.8 |
| Internship and prior residence also in same place | 8.7 | 9.7 | 33.4 | 25.9 |
| Internship also in same place | 4.4 | 4.1 | 5.0 | 3.9 |
| Prior residence also in same place | 3.1 | 3.1 | 9.7 | 10.8 |
| Medical college alone in same place | 2.3 | 1.7 | 1.7 | 1.2 |
| Practicing in same place as prior residence | 29.5 | 31.9 | 61.4 | 54.7 |
| Internship and medical college also in same place | 8.7 | 9.7 | 33.4 | 25.9 |
| Internship also in same place | 4.4 | 3.3 | 6.8 | 6.6 |
| Medical college also in same place | 3.1 | 3.1 | 9.7 | 10.8 |
| Prior residence alone in same place | 13.3 | 15.7 | 11.6 | 11.4 |
| Practicing in a different place | 59.1 | 57.3 | 27.4 | 32.9 |

766 Irving Ave.

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**Empirical Approach to the Electrocardiogram.**—In the final analysis the electrocardiogram, like other clinical data, is interpreted empirically. It is as good as the judgment of the interpreter.

Any kind of electrocardiogram may be normal in a person under 30 years of age. After the age of 70 almost any change in the electrocardiogram may be merely a part of the aging process. An isolated abnormal electrocardiogram does not inevitably indicate organic heart disease. It may imply some temporarily disturbed function, as in the innervation of hormonal control of the heart, constituting part of the picture of psychosomatic disturbances, and may actually have been engendered by fear or excitement associated with the taking of the record.

Even an abnormal electrocardiogram associated with organic heart disease may be benign or occult, requiring no alteration in the manner of living of the patient. The abnormal electrocardiogram is less important than the circumstances under which it occurs. Taking an electrocardiogram does not absolve the clinician from also using sound clinical judgment. Contrariwise, a normal electrocardiogram is no guarantee that the heart is normal. The electrocardiogram is only part of the clinical examination, an important adjuvant which should never be omitted in a patient with heart disease or in a person in the coronary age group. Under such circumstances it serves as a scanning test, possibly throwing out hints to the alert clinician to examine his patient more carefully.

Experience has shown that the clinical utility of the electrocardiogram depends on the information it gives about several of the physiologic properties of the heart, including its irritability, rhythmicity and conductivity. It furnishes no information concerning the contractile power of the heart or its tone.—Louis N. Katz, M.D., Advances in Electrocardiography, *The Medical Clinics of North America*, January, 1952.

# ESTATE PLANNING FOR PHYSICIANS

## PART 1: THE BUSINESS SIDE OF THE PHYSICIAN'S LIFE

*W. S. McClanahan, Chicago*

*This is one of a series of articles being developed for physicians who are interested in problems relating to economic security in their business and home activities. Other articles on estate planning and insurance will be published in* THE JOURNAL *soon.*—ED.

The physician, like most other men, is a many-sided person. In his practice of medicine he is engaged in a highly skilled calling, is a member of one of the most respected professions, and is usually self-employed. With the great progress in medical education in the past few decades, there is no doubt that the present day medical school graduate has received a satisfactory technical education. Probably no other profession can claim that its members enter practice better equipped by technical training and experience to perform their daily tasks.

In these articles another aspect of the life of the physician that is not directly related to his practice of medicine will be examined. Perhaps it can best be described as "the business side of the physician's life." The scope of the articles may be somewhat boader than that phrase indicates. The physician's life and work as a citizen, businessman, property owner, taxpayer, and head of a family group dependent on him will be surveyed. When the physician's life is analyzed from these viewpoints, it becomes evident that most of his hopes and dreams, his successes and failures, his problems and achievements are common to men in other businesses and professions. One difference seems to be that the physician, by reason of his long and specialized technical training, may not be as well equipped to cope with some of these problems as his counterparts in the fields of commerce and industry.

### THE PHYSICIAN AS A BUSINESSMAN

The reasons for this are not difficult to find. The fact that the medical course is now the longest, toughest, and most expensive in the professional field [1] precludes the medical student from engaging in studies in any other field. Perhaps his last taste of business education was a course in commerce, economics, or political science in his liberal arts or premedical course. During his internship and residency he has little time for such studies and almost no daily contact with the business world outside.

Thus the young physician arrives at the threshold of active practice after 8 or 10 years of the best specialized training that our colleges and medical schools can give him. He proceeds to start his own practice and looks forward to his first real earnings. From the viewpoint of these articles, he has "set up his own business" with little previous education or training in the complex world of modern business. Our formal educational system has spent a vast amount of time, effort, and money to make him a good doctor, and very little to make him a good businessman.

Unlike some other professions, such as law and accounting, the practice of medicine brings the physician into very little contact with the business world. The young lawyer and accountant commence at once to handle many types of business transactions for their clients, and thus gain valuable experience that is helpful in the management of their own affairs. The only business experience that the physician gains is in the management of his own property and estate as he acquires it. This learning by trial and error in the fields of business and investments often costs the physician his first few hundred or few thousand dollars of savings, which makes it rather expensive education.

What the physician should recognize, early in his business and professional life, is that modern business is a technical and complex field. It involves a knowledge of economics, finance, banking, insurance, law, and taxes. Many of these fields are as specialized as medicine itself. Judge Waugh in his excellent article [2] stated the case for the legal field well when he said, "In the field of law he (the physician) is no longer a professional, he is a layman." The same can be said of the other fields mentioned above.

Fortunately, for the physician and for other professional men and property owners, there has developed in the past few years a new field of endeavor called "estate planning." Within this field there are now many trained, full time specialists who can assist property owners in planning their affairs to meet today's complex problems. These men are often referred to as the "estate planning team," which generally includes the lawyer, the life insurance underwriter, the trust officer, and the accountant. It is the purpose of these articles to point out how the physician can, with the help of these specialists, solve his financial problems to the benefit of himself and his family.

In a recent issue of THE JOURNAL an article by John Alan Appleman [3] gives a good description of the philosophy of estate planning (he prefers the term "estate analysis"). Appleman sketches a financial picture of a hypothetical case and shows what pitfalls exist for the physician who attempts to be his own financial and investment expert. He also gives an excellent description of the materials and information needed for an estate analysis.

### DEFINITION OF ESTATE PLANNING

"Estate planning" is a term that has come into prominence only recently, although the art and practice of estate planning has been carried on for generations.

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Member of the Illinois Bar Association and Assistant Vice-President, Lake Shore National Bank.

[1] Dickinson, F. G.: Income Tax Discrimination Against The Professions, J. A. M. A. **142:** 1357 (April 29) 1950. Dr. Dickinson estimates that the total cost to the student of the nine year training period is about $35,000, including tuition and school expenses, lost income which he could have earned, and interest on his total investment. In addition the medical school has spent another $10,000 on his education.

[2] Waugh, W. F.: Wills for Physicians, J. A. M. A. **144:** 842 (Nov. 4) 1950.

[3] Appleman, J. A.: Even Physicians Die, J. A. M. A. **1** (Dec. 15) 1951.

There are many misconceptions of the meaning of this term, and it may be well to dispel some of the mystery surrounding it. Perhaps the term itself connotes some narrow limits that do not exist. The word "estate" may indicate to many that this type of planning is done only by the very old and very wealthy, or when death is imminent. Some may think that estate planning is only a device by which the idle rich avoid paying their share of the nation's taxes. Nothing could be further from the truth.

Estate planning has been defined as "the careful and orderly analysis of the family, financial and business affairs of a property owner, while he lives, and the adoption and carrying out of an individual plan for the use of his property and earnings according to his wishes, both during his life and after his death." Perhaps we can simplify it still further. It is the planning of a person so that his property and earnings will do him the most good while he lives and his family the most good after he is gone.

As thus defined, estate planning does not seem mysterious or complicated. A generation or two ago it was not. The usual estate plan in those days, if such it can be called, consisted of a simple will of the head of the family. It was often prepared with little advance consideration, on the occasion of the death of a relative, departure on a long trip, or some other event that brought the uncertainty of life into the property owner's thinking. Such a will usually left the entire estate to the wife, appointed her executor, and excused her from furnishing a surety on her executor's bond. The property owner then signed the will, placed it in a safety deposit box, (or perhaps in some secret filing place in the home, where it might never be found), and relaxed with the satisfaction that comes when a disagreeable task has been completed.

### INCREASED NEED FOR ESTATE PLANNING

A generation or so ago that was enough of an estate plan for the average family. Whether we look on those as "the good old days" or not, life was far less complex than it is today. The duties and problems of the business professional man rested more lightly on his shoulders he had a better chance to achieve his chosen objec- es. By careful management of the financial affairs of the family, he could acquire and hold a substantial amount of property during his working years. Properly invested, this estate would produce sufficient income to support him in old age and his family after his death. The picture today is vastly different. Many changes in the last few years have altered our business and financial lives. We need mention only a few to set the problem out in bold relief.

A national weekly news magazine [4] recently published an interesting study on the effect of rising taxes and declining purchasing power of the dollar. It is stated that the man with a wife and two children who earned $10,000 in 1939 needed $25,000 in 1951 to furnish the same standard of living for his family. In 1939 income tax took only about $350 of the $10,000, leaving $9,650 of disposable income for the family. Due to the decline in purchasing power of the dollar, this family now needs about $18,500 of disposable income to maintain the same standard of living. In 1951 the head of this family would have to earn $25,000 and pay income taxes of $7,500 in order to retain $18,500 of disposable income. On the same basis, the man who earned $15,000 in 1939 would need $43,000 in 1951 to maintain his former position.

These figures point out how very difficult it is today for a salaried or professional man to save enough out of his earnings during working years to build an adequate estate. Even if he is successful in accumulating considerable property, the income alone will not support him at retirement or his family after his death, as it would have just a few years ago. This is the result of a third factor in our current economic life, the decline in interest rates in the past 30 years. Thirty years ago an estate of $100,000 invested in high grade bonds would have produced an income of $5,600 annually, 25 years ago the same estate would have produced $4,700, and today would produce about $2,900. This is the principal reason why the laws of most states have been changed to allow trustees to invest a portion of their trust funds in common stocks, in order to increase the income for the support of the beneficiaries.

These three factors alone (and there are many others) make the financial planning of the average family today more difficult and more necessary than ever before. For professional men, and particularly for physicians, careful and sound financial planning is absolutely essential to a happy and successful life and practice. There are several reasons why physicians need this type of planning more than the average businessman or corporation employee. To check this statement, let's go back to fundamentals. What are the basic reasons that men save money from their day to day earnings? Why not spend at once what is earned each day?

### REASONS FOR ACCUMULATING SAVINGS

It has been said that there are only four basic reasons why men save money. First, they save for emergencies such as temporary loss of earnings, a costly illness in the family, or any similar emergency that strikes without warning and requires immediate cash expenditures. Second, they save for disability, so that funds may be available in case the principal income producer of the family becomes unable to work and earn, either for a long period or permanently. Third, they save for their old age, so that they may have some money and source of income when old age makes them unable to continue full time work, or younger and fresher talents crowd them from the stage. Fourth, they save for death, so that their families will have something to fall back on if premature death keeps them from carrying out their other plans.

These four hazards—emergency, disability, old age, and death—are the only reasons why persons save money; and every one of them is beyond personal control. Men cannot, by personal efforts, eliminate the possibility of their happening to them, nor can they choose the date on which they will happen. What they can do is to recognize the risks involved and do everything in their power to plan for them. Then, when the blow falls, the

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4. $4,000 man in '39 Needs $9,000 Now, U. S. News 31: 13 (Nov. 16) 1951.

financial effect on them and their dependents will be minimized, if not entirely eliminated. Is the physician more subject to these economic hazards than salaried persons and businessmen? Probably not. If and when one of them strikes, may the financial effect on the physician and his family be greater? Probably yes.

First, as to emergencies. Being self-employed, most physicians do not have the risk of temporary unemployment or being laid off in a slack period that the salaried employee may have. A serious illness or operation in the physician's family may not cost him as much as it would other persons. If he is disabled for even a short period, however, his earnings cease immediately, while the average business employee may receive his regular salary during a disability of several months' duration. If earned income stops, something must replace it. This is a hazard that the physician must provide for through cash reserves, health and accident insurance, and other forms of protection.

The second hazard, disability, is similar to the first, except that it refers more to prolonged illness or incapacity, or permanent disability forcing an early retirement. Its impact on the physician and his family is immediate and may be disastrous. A salaried person may receive considerable help from his employer. If he has several years of service, he may be entitled to a disability pension for life. Here again the physician must do his own planning and protect himself through insurance, savings, and reserves in other forms of property.

In regard to the third hazard, old age, two new elements must be considered. It is not really a contingency, because it is bound to happen to everyone, and the date of its arrival can be calculated with some degree of accuracy. It is here that the true field of financial and estate planning is entered. The economic effect will be greater than that of a temporary emergency, but there is a longer time to plan and act to meet it. It is in this situation also that the physician's greater need for estate planning than that of business employees stands out in bold relief.

### SOCIAL SECURITY BENEFITS

There are two forms of retirement income available to most salaried persons in which the physician does not share. The first is Federal Old Age and Survivors Insurance, which now covers about 45 million of the 62 million employed persons, or about three out of four.[5] Under the 1950 amendments to the Social Security Act, about 10 million new persons were brought within its coverage, including over 4 million self-employed persons.[6] Physicians in private practice and other professional men were specifically excluded in these amendments, and there is little possibility of their inclusion in the near future.

There is one exception to this, however, and that is the physician who was in military service between September, 1940, and July, 1947. The 1950 amendments provided that, depending on his total time in military service, the family of a physician who dies within a few years after leaving the service may be entitled to survivors benefits that are valuable and substantial. These benefits might be worth $10,000 or more to the average doctor's family, depending on the age of his dependents at his death. Following is a hypothetical case of a physician who was never employed on a salary and hence never covered under Social Security, except by reason of the special provisions for military service.

This hypothetical physician, Dr. Richard Roe, entered military service Feb. 1, 1942. He was honorably discharged Feb. 1, 1946, and died Feb. 1, 1952. He was survived by his widow, age 45, a son, aged 12, and a daughter, aged 8. His survivors would be entitled to the *following benefits:*

| | |
|---|---|
| Benefits to widow and two children until son attains age 18 on Jan. 1, 1958, at $58.50 per month | $ 4,200 |
| Benefits to widow and one child until daughter attains age 18 on Jan. 1, 1962, at $54.80 per month | 2,600 |
| No further benefits until widow reaches age 65 | |
| Benefits to widow from age 65 to her death at age 78 at $27.40 per month | 4,200 |
| Total benefits received, based on assumed facts | $11,000 |

The survivors benefits available decrease in amount as the period of time elapsed after leaving military service lengthens, and the right to benefits ceases after several years. It would be well worthwhile for every physician who was in military service to check the nearest office of the Social Security Board and find out what benefits his family would receive in case of his death and when this coverage expires.

For the salaried person who is fully insured under the Social Security Act, the increased benefits under the 1950 amendments are now a considerable factor in planning for retirement. A person who has earned the maximum credit (an average salary of $300 or more monthly), and whose wife is also 65 when he retires, receives retirement benefits for life that may range from $10,000 to $20,000, depending on their longevity. Following is an example of the benefits that might be received by this fully insured employee and his wife after retirement when the husband dies at age 77 and the wife at age 78:

| | |
|---|---|
| Husband receives $80 per month for 12 years | $11,520 |
| Wife receives $40 per month for 12 years | 5,760 |
| Lump sum benefit at husband's death | 240 |
| Wife receives $60 per month for 1 more year | 720 |
| Total benefits based on assumed facts | $18,240 |

Since the physician does not have this form of retirement income available through Social Security, he must do his own planning and secure similar benefits through life insurance or annuities. The cost to the physician will depend on whether he purchases insurance or annuities early in life, or over a period of years, with benefits to commence at retirement, or waits until his retirement date and purchases them to commence immediately. In the latter case an annuity to pay him about the same benefits as Social Security would cost about $20,000.[7]

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[5] 5. Annual Statistical Supplement, Social Security Bulletin, vol. 14, no. 9, Federal Security Agency, (Sept.) 1951.

[6] 6. Your Social Security Benefits, Industrial Relations Institute of Commodity Research Bureau, Inc., New York, 1951, p. 4.

[7] 7. This is not an exact comparison, as the insurance companies do not issue annuities that will pay the annuitant in *exactly the same amounts* and methods as Federal Old Age and Survivors Insurance. If the insurance or annuities are purchased earlier, with benefits deferred until retirement, the costs will be substantially less. The cost of this and other annuities mentioned in this article were taken from standard 1951 insurance handbooks and represent an average cost based on the rates of several companies, rather than the quoted rate of any particular company.

### PRIVATE PENSION PLANS

The second form of retirement income available to a large number of salaried persons employed in business and industry is the private pension plan. If the plan is approved by the Bureau of Internal Revenue, the employer's contributions are deductible from his income tax return and are not taxable to the employee until he receives the funds at retirement. Thousands of these plans have been adopted recently, and no figures are available as to how many persons are covered by them or the average pension payable.[8] Let us assume that a company has a private pension plan that will pay a salaried employee $200 per month for life after he retires at 65. If the physician wishes to purchase similar retirement benefits in the form of life insurance or annuities, he will find that the costs are substantial. An annuity purchased at age 65, with payments of $200 per month for life to commence immediately, with no refund in case of early death (which resembles the provisions of many company pensions), would cost around $30,000. If the funds are built up on the books of an insurance company by the purchase of life insurance or annuities over a period of years, the compound interest principle will substantially reduce the cost of this retirement income.

These are two forms of retirement income that are an important part of the estate planning of most businessmen and salaried persons, and to which the employer makes a contribution. No employer is making a contribution to any retirement fund for the practicing physician. Neither can the physician lay aside from his earnings similar amounts tax free, and achieve the income tax deferment advantages of the private pension plan. These are two additional reasons why the physician is more in need of sound financial planning than many other persons if he is to enjoy the same benefits at retirement.

### TAX-FREE RETIREMENT FUND FOR PROFESSIONAL MEN

At present there is some indication that this so-called income tax discrimination against the professional man may be abolished, or at least reduced substantially. The physician is not alone in this inability to join in a pension plan and accumulate tax free funds for retirement. Lawyers, accountants, and other self-employed professional men are also denied this privilege. In recent years the pressure of high income tax rates has caused much agitation among professional groups for legislation to end this tax discrimination. A special committee of the American Bar Association has been actively at work devising plans to amend the income tax laws in furtherance of this objective. Their work culminated in a bill introduced in Congress on June 7, 1951, known as the "Keogh Bill" or H. R. 4371, which would have granted to professional men the privilege of contributing a limited portion of their earnings, tax free, towards a "restricted retirement fund." [9] The general principle involved in this bill has the support of many professional groups, including the American Medical Association.[10] The chairman of the special committee of the American Bar Association has stated that this bill, or one similar to it, has a fair chance of being enacted into law at the next session of Congress, if it has the active support of all professional groups.[11] Such legislation would have a most beneficial and far reaching effect on estate planning for physicians.

The fourth and last of the reasons why people save is to provide for their dependents in case of premature death. Everyone likes to think that, if he is allowed to live to carry out his plans, he will be able to provide for himself and his dependents through his own efforts. But the mortality tables contain the undeniable proof that all men will not be granted this privilege. No financial plan is sound that does not give this hazard a high priority in planning and allocate sufficient proportions of the available resources to insure against it. The worst tragedy that can happen to any family unit is the premature death of its principal income producer. The death of any other family member is a major tragedy, and results in great emotional shock and sense of loss to the remaining members, but as an economic unit the family may not be seriously affected. When the head of a family, the "breadwinner," is taken prematurely by death, the very existence of that family as a unit is seriously threatened. Only when the head of the family has worked out a sound financial and estate plan, and has implemented it with adequate measures to assure its success, can his family be reasonably sure of their ability to stay together as a family, not dependent on relatives or on charity. This sense of family responsibility and loyalty is the underlying reason for all financial and estate planning. Later articles in this series will point out some of the methods by which these purposes and objectives can be achieved.

605 N. Michigan Ave.

**Nature's Sugar Tolerance Test.**—Examination of the urine for sugar is particularly valuable in the febrile patient. Infection is nature's sugar tolerance test; in many instances fever taxes the function of insulin far more than 100 gm. of glucose. The alert physician will, therefore, use these occasions to make his routine urinalysis for sugar. If negative, the patient probably has a good insulin reserve. If positive, one must suspect and usually treat as diabetes, establishing the severity of the disease later by appropriate study.

Part of the mechanism which makes fever antagonistic to insulin is the activation of the adrenal cortex. The proper examination of the urine for sugar during the treatment with ACTH and cortisone may well reveal a number of prediabetics. Endocrine diseases, such as hyperthyroidism, acromegaly, and Cushing's syndrome, have a high incidence of diabetes. Repeated examinations for diabetes are part of the management of such patients.—F. D. W. Lukens, M.D., The Proper Use of Laboratory Tests in the Diagnosis and Management of Diabetes, *Diabetes*, January-February, 1952.

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8. The latest official figures of the Treasury Department released in August, 1946, estimated that there were in existence about 6,800 pension plans covering more than nine million employees. Unofficial estimates by a national tax reporting firm estimated that there were 13,000 pension plans and 3,000 profit sharing plans in effect as of July, 1951.

9. Identical bills were introduced in the House by Representative Keogh (H.R. 4371) and Representative Reed (H.R. 4373) and referred to the Committee on Ways and Means. On July 25, 1951, Senator Ives introduced in the Senate an amendment to the Revenue Bill (H.R. 4473) then pending, which was in substance similar to the other bills. The Senate Finance Committee voted to take no action on this amendment, but referred it to its technical staff for study. Report of The Special Committee on Retirement Benefits, distributed to members of the American Bar Association, Chicago, Sept. 17, 1951.

10. Dickinson.[3]

11. Committee Report, American Bar Association.[9]

# REHABILITATION OF PATIENTS WITH DEEP BURNS

*James Barrett Brown, M.D., St. Louis*

Patients with large full thickness loss of skin from burns require skin grafting for healing, function, and rehabilitation. This group presents a major part of the burn problem, and a summary of their needs and their care is outlined here.

In the extensive literature, much effort has been directed toward some method of local care, to taking care of acute and chronic shock, and to problems of deranged blood chemistry and metabolism. This work has been of great benefit and has stimulated a burn consciousness, so that excellent care may be afforded burned patients, and many more lives are saved, thus adding to the numbers who require later grafting and reconstruction. There still is, however, a lack of reports of completed care of patients who have been badly burned and not only have been saved from death but have had satisfactory surgical repair of open wounds and contractures and have been rehabilitated to useful life.

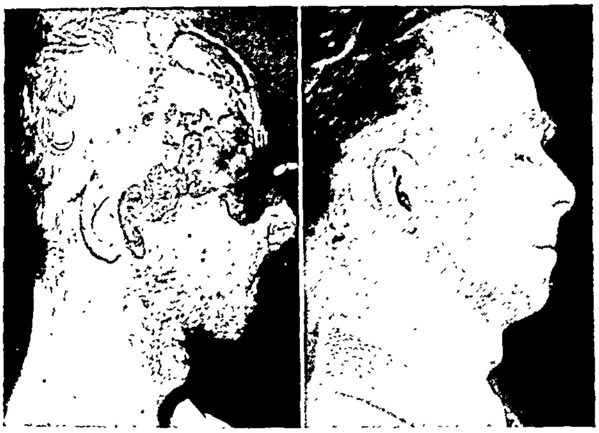

Fig. 1.—Deep widespread burn (Air Force) requiring resurfacing of nearly the whole face, reconstruction of all four eyelids, the nose, both ears, and both eyebrows, and grafting of both hands. (The patient was cared for at Valley Forge and St. Louis Veterans Hospitals and later attended college and was married.)

One difficulty arises from interpretation of "superficial" and "deep" burns and the healing processes of both. The recording of various degrees of burns may be a stumbling block, and the degrees could be replaced with a classification of "superficial," "partial thickness," and "full thickness" loss, with "deep burn" reserved for full thickness loss. Superficial burns may not have any deep areas, but deep burns nearly always have superficial areas. The determination of these depths is often difficult and should lead to a conservative attitude toward immediate or early excision of burns.

If full thickness of skin is burned away over a large area, there will be contraction and distortion and loss of function unless the lost skin is restored. Epithelium will regenerate, but the full complement of the skin will not. The patient will require a pad of derma to receive the blows and trauma and to adjust to the temperature changes of his environment.

A basic plan of repair of large full thickness losses of skin may be (1) to get the area as clean as possible, as soon as possible, and (2) to restore what skin has been lost. This should reduce scar formation to a minimum; then, when the wound is healed and the patient has recovered, one may proceed with any necessary secondary repairs for the release of unavoidable distortion or for restoration of features and contour anatomy and function.

## HEALING OF BURNS

Almost any treatment that promises as little work as possible for the fresh burn is apt to become popular; however, so far no application has been found that will produce normal skin in wide full thickness losses. When it is claimed that a certain preparation or type of treatment will insure complete healing without scarring, it apparently is not generally realized how healing occurs in either superficial losses of skin or in full thickness losses of skin.

If there is rapid healing and return to function following a burn without much scarring or deformity, this means that the full thickness of the skin has not been lost and that regeneration has occurred from the deep glands in the derma, much the same as occurs in the donor site of a thick split graft. It has been observed that healing of these struggling cells is interrupted by chemical, bacterial, or mechanical trauma. Therefore, it appears that cleanliness, protection, and the avoidance of strong chemicals will promote this type of healing, and these objects of treatment have stood the test of time. It is obvious that a dirty dressing, leaving a coating of pus over a partial thickness burn, would be apt to stop healing and that such a partial loss might be changed to a full thickness loss. This same finding is true in coagulum methods of treatment, whether the coagulum is formed by chemicals or is a natural one on the wound. It seems unnecessary to mention that tannic acid is the chemical used to turn hides into leather and that such strong chemicals can be injurious to healing tissue.

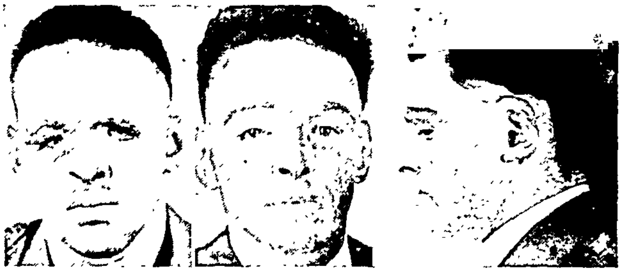

Fig. 2.—Burn (Air Force) with loss of vision from scarring of lids, requiring reconstruction of all four eyelids, both brows, all four canthal regions, and the right ear. The patient also had complete grafting of both hands, palmar and dorsal surfaces. (The patient was cared for at Valley Forge and St. Louis Veterans Hospitals.) Restoration of sight, function, and normal anatomic contour. The patient later graduated in law.

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From Department of Surgery, Washington University Medical School.

Some of the illustrations have been omitted from The Journal but will appear in the author's reprints.

Read before the Section on Surgery, General and Abdominal at the One-Hundredth Annual Session of the American Medical Association, Atlantic City, June 13, 1951.

### PRIMARY CARE

With the chance to see burns early, to clean them if necessary, and to get a comfortable fine mesh grease gauze, pressure-fixation dressing on them, it does not seem necessary to leave the burns exposed without dressings and require all patients to be hospitalized. For superficial burns (for which the exposure method is best adapted) almost any careful treatment will suffice, if deep loss of derma can be avoided. Many of these burns will heal in 10 to 12 days with protective dressings, and many of them do not require hospitalization. In times of disaster this seems most important, and patients in hospitals for exposure treatment might actually give aid to others if their own burns were dressed and did not require hospitalization. There have not been sufficient observations to permit a final decision that the exposure method is ready for complete adoption for large deep burns. For burns in some areas, such as the anal and genital regions, in some facial burns, and in some instances in children, where hospitalization is necessary, this method may find good usage. The decision in mass burns or disaster would seem to be one based on proper consideration of the patients in relation to personnel, supplies, and available beds as well as what might be best for the patients. Using the best care in individual instances is proper, but it may be necessary to drop down to secondary levels as pressure of work and availability of materials dictate.

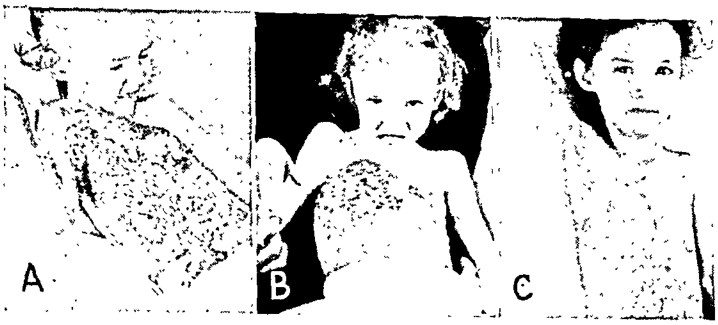

Fig. 3.—*A*, deep burn of the axilla, arm, and neck. *B*, flat surface grafting with healing and distorted position. *C*, secondary restoration of function with free thick split grafts for full axillary coverage and neck reconstruction.

One important consideration is that the care of deeply burned patients is complicated and time consuming. The first echelon of care may have to center on the easiest plan, but this may necessitate greater total care as the problem of the deep burn looms in the rehabilitation. There are many ways of looking after a burn primarily; the paraffin treatment for example is one of the best and kindest methods devised. Colebrook's germ-free air is ideal in his hands with his equipment. But all of these methods cannot always be carried out, so that, in deciding on an over-all treatment, we do not have to find argument over no dressings or pressure dressing, but we may be sure to employ careful and gentle methods and to avoid methods that have real pitfalls. Tannic acid had its great advocacy because of the apparent ease of care, and it, silver nitrate, and other irreversible methods are things to avoid. Such procedures as amputating arms because the hands are burned (as was carried out by the enemy in World War II) form the most irreversible procedures. Skeletal traction through finger tips does not appear warranted routinely to elevate arms, and in a large series would probably do as much harm as good.

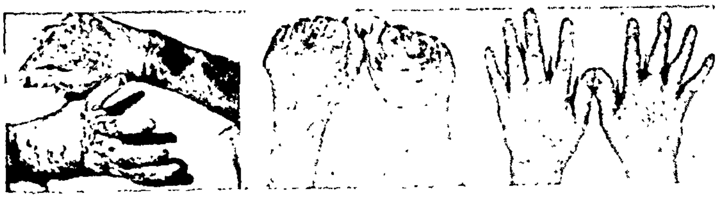

Fig. 4.—Deep burn (Air Force) of the hands. The patient has lost the most distinguishing human anatomic characteristic in not being able to bring the thumb around in front of the fingers. Rehabilitation was accomplished with split graft resurfacing of both hands at the same time. (The patient was cared for by two surgical teams at Valley Forge Hospital.)

Amputation may be considered at times for hopelessly damaged lower extremities in an effort to control the fatal tendencies, and this has been carried out successfully by Dr. Carl Moyer. Severe deep burns of the lower extremities and the body in general cause death after the immediate shock has been controlled. Often, despite an inadequate blood chemistry explanation, a possible cause of death may be the destruction by the burn of the nocifensor system, Sir Thomas Lewis' name for a system of nerves in the skin and mucous membranes, which are concerned with local defense against injury.

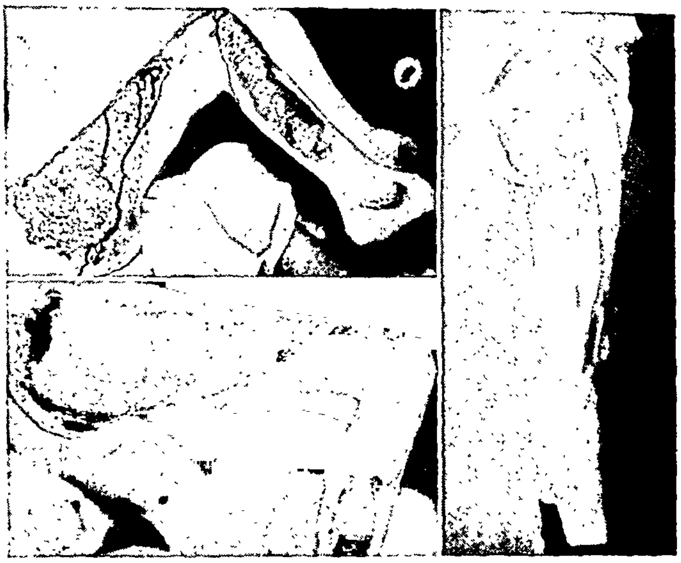

Fig. 5.—Homografts from the patient's father were used as a lifesaving measure. There was a deep burn with such severe pain reaction that recovery was questionable. The patient "walked around" in homografts; later final rehabilitation was accomplished with his own skin as shown. (Brown, J. B., and McDowell, F.: Skin Grafting, ed. 2, Philadelphia, J. B. Lippincott Company, 1949.)

In allowing nature the best chance of healing, protection of the wound with fine (no. 44) mesh grease gauze is applicable. Pressure fixation of the burn over this gauze is obtained with large pads, cotton surgical waste, gauze rolls, and bandaging. "Pressure-fixation" is used, instead of "pressure," to indicate support of adjacent joints to put the area at rest. The use of hydroscopic gels, reported by Curtis and being developed by Oakes and Trimbly, may offer an efficacious method.

### EARLY GRAFTING

Early grafting is done in deep burns, before irreversible chronic shock and general debilitation occur. Most burns can be ready for grafting in two weeks, and agents and enzymes to hasten the separation of sloughs will prove of great worth. If exposed bone or tendon persists, grafting can be carried up to these areas and as much healing as possible obtained. Flat surfaces can be repaired by excision and grafting, but not the face, genitalia, or feet.

The technique of immediate excision and grafting has not been used in a series of sufficient size so that results could support claims for it. Its use is limited to small areas that have been burned with hot metal or other agents, leaving a definite outline of damage. Certainly this process should not be applied to the face, hand, foot, or genitalia. Even on flat surfaces the results are not promising enough so that it can be advocated as a general procedure, as there is no way of being sure about partial and full thickness losses.

### PREPARATION FOR GRAFTING

A fundamental of dressing all raw wounds is that fine (no. 44) mesh gauze be placed next to the surface, so that granulations will not grow up through the coarse meshes of regular surgical gauze, stick, and cause pain. These dressings can be moist with mild antiseptic or saline solution; and when cellulitis is controlled, grease dressings on fine gauze or cotton bed-sheeting can be used. Needless to say, all these dressings on raw surfaces should be kept clean and changed as necessary, so that secretions are not dammed over the surface. A firm pressure or elastic dressing may be of advantage in older wounds, and discolored, edematous granulations may be flattened out into a firm, bright red surface without the use of chemicals or without their having to be cut away.

### INFECTION AND CONTAMINATION

Very large open burns, in spite of what one might hope for, probably cannot be gotten or kept bacteriologically clean. They might be made free of infection, but over any long period they are apt to have organisms in them. The essential thing is whether there is infection with cellulitis or just contamination, with the patient possibly living in symbiosis with the organisms. Careful evaluation of the general condition and local area usually suffices for determination of the time for operation.

### THICK SPLIT SKIN GRAFTS AND HOMOGRAPHS

For making extensive repairs, such as 250 sq. in. being transferred at one time, it is essential that a method of grafting be used in which prompt healing of the donor site can be had. For this the thick split skin graft is used, with careful cutting of the grafts. If they are cut too deep, added crippling may occur; in some patients, trouble in the donor site has exceeded that of the original lesion.

Homografts are used as emergency "dressings" of wounds to tide patients over critical periods; many lives can be saved by these grafts. There is respite from pain and dressings and fluid loss while the grafts are in place, and the patient may actually walk around in the skin of another person. As far as we know homografts in warm-blooded animals do not survive permanently. Dr. Leo Loeb, one of the foremost geneticists, believes that except for identical twins no two human beings are exactly alike. Successful homografts in identical twins with permanent survival have been reported, and have been studied by Dr. Loeb. If an identical twin is burned, his twin's skin can be used, with good hope of permanent survival.

If corticotropin (ACTH) could cause foreign skin to survive permanently, one of the greatest obstacles would thereby be surmounted. It is difficult to see, however, how the use of corticotropin could make everyone alike, which seems necessary for homografts to survive. There seems to be confusion in the use and terminology of homografts, there seldom being differentiation between "take" and "permanent survival," but so far no substantial series of permanently surviving homografts has been observed. Homografts will take and grow with or without hormones or antihistamines, but permanent survival is yet to be proved. A recent report has been made of growth of homografts attributable to the use of corticotropins, but the grafts reported had not been observed over a long period, and only a single instance was cited. There have been known survivals of homografts for several months without the use of corticotropin. No measurable effect of corticotropin on the permanence of survival of homografts clinically or experimentally has been reported. This does not mean that efforts at producing such a fortunate situation are not laudatory or that they should be given up.

### REPAIR OF CONTRACTURES AND REHABILITATION

Technical procedures and short-cuts in early care are of importance, but not so much so as to cloud the fact that full thickness of the skin has been lost in many patients and that a great problem in rehabilitation is the late grafting and repair of contractures and distortions and replacement of lost features. This echelon of plastic surgery is sometimes overlooked. Loss of features and sight, because of damage to the lids, may follow facial burns, and in World War II about one-third of the work in the plastic surgery centers was in repair of burned faces. Even with early grafting of raw areas, lost features still have to be rebuilt.

### MILITARY PLASTIC SURGERY

In any area of gasoline usage, there may be many patients with deep burns. The same depth results whenever there is sufficient heat long enough to destroy the full thickness of the skin. Even flash burns may be hot enough to destroy the full thickness on the face and hands, though clothing may protect the rest of the body.

Burned hands are a close second to burned faces in problems of reconstruction, though they respond better to early grafting than do faces. Time-consuming restorations in late contractures make the plan "to get the area as clean as possible as soon as possible and restore what skin has been lost" all the more important.

In preparation for disaster and military surgery, training of young surgeons for flat surface and early hand grafting is important. Army surgeons and foreign observers (and several surgeons on the rotating surgical service of the Washington University Medical School each year) are trained to do good flat surface grafting. In World War II a large part of the work depended on these men, and their good work justified this type of surgical training.

### CONCLUSION

The final criterion of the result of reconstruction and rehabilitation is the extent to which the patient is able to resume his normal station in life and carry out his usual activities without embarrassment in regard to his appearance or limitation in his motions. This optimum goal seems to be a high one, but it can be attained surprisingly often by sufficient persistence on the part of the surgeon and others caring for the patient, along with the cooperation of the patient himself.

400 Metropolitan Bldg., Grand Ave. and Olive St. (3)

# REHABILITATION OF HAND FUNCTION IN RHEUMATOID ARTHRITIS

*Donald L. Rose, M.D., Kansas City, Kan.*
*and*
*H. Worley Kendell, M.D., Chicago*

Although recent clinical literature abounds with publications that attest to the high level of medical interest in the treatment of rheumatoid arthritis, few [1] of these have dealt with the hand deformities produced by this disease. Yet, the inability to utilize the hands in some useful, or at least time-consuming, occupation constitutes for most patients a more distressing complication by far than similar involvement of any other combination of joints.

There is general agreement as to the importance of the prevention of deformities, and recent publications [2] have shown in excellent fashion the means by which such deformities, including those of the hands, may be minimized. There does and will remain, however, a certain percentage of patients whose hand disability will increase despite attention to these prophylactic measures. We present this report in the hope of interesting others in deviating from the frequent attitude of acceptance of the crippled hand as one of the inevitable evils of rheumatoid arthritis.

## ORIGIN OF THE HAND DEFORMITIES

With few exceptions [3] there apparently has been little effort to clarify the mechanisms by which hand deformities occur. Most workers have merely described the deformity as it is seen. Although Comroe [4] defines the hand deformity of rheumatoid arthritis as ulnar deviation of the fingers, hyperextension at the metacarpophalangeal joints and acute flexion of the interphalangeal joints, these are the earlier changes. Later, as shown in figures 3, 4, and 5, with the exception of ulnar deviation of the phalanges at the metacarpophalangeal joints, which remains constant, the reverse of these changes occurs, with flexion at the metacarpophalangeal joints and contracture of the palmar fascia, hyperextension of the proximal interphalangeal joints, and flexion of the distal interphalangeal joints. There are, in addition, subluxation of the proximal phalanges anterior to the head of the metacarpals and loss of space at the proximal interphalangeal joints. Careful questioning of the patient usually elicits the sequence of appearance of these deformities as follows: flexion at the metacarpophalangeal joints (especially the second and third), ulnar deviation of the phalanges at the metacarpophalangeal joints, and, as a later manifestation, hyperextension at the proximal and flexion at the distal interphalangeal joints.

The constancy of these deformities strongly suggests a uniform mechanism for their production common to all persons with this disease. The obvious atrophy of the intrinsic musculature of the hand has given rise to the common belief that weakness of these small muscles accounts for the deformities. However, carefully performed manual muscle tests[5] reveal widespread weakness of all muscles associated with hand function, the intrinsic muscles being no weaker proportionately than the others. In fact, although it is impossible to grade muscle strength accurately because of the pain induced by the test procedure, the lumbricales seem to be somewhat stronger relatively than the other hand musculature.

Attention has previously been directed [6] to the theoretical importance of the dorsal interossei in maintaining the normal position of the phalanges at the metacarpophalangeal joints. The finger flexors and extensors, the lumbricales, and the palmar interossei are fusiform muscles; as such, the muscle fibers transmit their tension directly in the line of movement of the tendon of insertion. The dorsal interossei are bipennate muscles, the fibers of which insert into a central tendon. The efficiency of pull of these fibers varies with the sine of the angle of insertion into the central tendon. The more nearly the fibers insert at a right angle to the central tendon, the less effective is the mechanical force of the muscle contraction; the more acute the angle of fiber insertion, the greater its mechanical effectiveness.

In the patient with rheumatoid arthritis, widespread muscle weakness has already been noted. Continued holding of the fingers in the normal position of slight ulnar deviation of the index finger tends to place the radial half of each of the dorsal interossei on stretch. This additional fatigue and weakness further diminishes the effective pull of these fibers; at the same time the ulnar half of the fiber group shortens adaptively, but at a less acute angle of insertion and with less effective pull on the central tendon. The antagonistic palmar interossei are placed at no such mechanical disadvantage, since they are fusiform muscles. It is believed that the imbalance thus produced between the dorsal and palmar interossei accounts for the component of ulnar deviation in the deformity syndrome.

The component of flexion at the metacarpophalangeal joints and extension of the interphalangeal joints may

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From the Department of Physical Medicine, University of Kansas School of Medicine (Dr. Rose) and the Department of Physical Medicine and Rehabilitation, University of Illinois School of Medicine (Dr. Kendell).

[1] Joplin, R. J., and Baer, G. J.: Treatment of Arthritic Joints, J. A. M. A. **118**: 937 (March 21) 1942. Law, W. A.: Surgery in the Treatment of Rheumatoid Arthritis and Ankylosing Spondylitis, Proc. Roy. Soc. Med. **41**: 251 (April) 1948. Bunnell, S., and Howard, L. D., Jr.: Additional Elastic Hand Splints, J. Bone & Joint Surg. **32-A**: 226 (Jan.) 1950. Kestler, O. C.: Reconstruction of the Deformed Arthritic Hand, Ann. Surg. **131**: 218 (Feb.) 1950. De Rosa, A. J.: An Exercise Glove, Phys. Therapy Rev. **30**: 138 (April) 1950.

[2] (*a*) Hill, D. F., and Holbrook, W. P.: Prevention and Treatment of Deformities in Rheumatoid Arthritis, J. A. M. A. **142**: 718 (March 11) 1950. (*b*) Holbrook, W. P., and Hill, D. F.: Manual of Rheumatic Diseases, Chicago, The Year Book Publishers, Inc., 1950. (*c*) Primer on the Rheumatic Diseases, Chicago, A. M. A., 1949.

[3] (*a*) Small, J. C.: The Mechanics of Deformities of the Hands in Atrophic Arthritis and a Discussion of Their Prevention and Correction, Ann. Int. Med. **32**: 1087 (June) 195 (*b*) Pruce, A. M.: Rehabilitation of the Hand, J. M. A. Georgia **38**: 49 (Feb.) 1949.

[4] Comroe, B. I.: Arthritis and Allied Conditions, Philadelphia, Lea & Febiger, 1944, p. 225.

[5] Kendall, H. O., and Kendall, F. P.: Muscles: Testing and Function, Baltimore, Williams & Wilkins Company, 1949.

[6] Rose, D. L., and Wallace, L. I.: A Remedial Occupational Therapy Program for the Residuals of Rheumatoid Arthritis of the Hands, Am. J. Phys. Med. **31**: 5 (Feb.) 19

arise through excessive use of the lumbricales. The characteristic involvement of the proximal interphalangeal joints in this disease gives rise to efforts on the part of the patient to spare himself as much pain as possible in the course of normal flexor use of the fingers. Since the metacarpophalangeal joints are usually not so painful on use, flexion here with splinting of the interphalangeal joints provides flexor function of the hand without the pain of normal use of the part. Flexion at the metacarpophalangeal joints and extension of the phalanges are functions of the lumbricales rather exclusively, and, when employed consistently in this fashion, little use is made of the normal flexor-extensor mechanisms of the fingers.

## MATERIAL AND METHODS

Rehabilitation of hand function must proceed along the lines of correcting the muscle imbalances described. However, in formulating a rehabilitation program, we realized early that several provisions must be met adequately:

1. The patient must be well oriented to the general details of the program and his cooperation pledged on a long-range basis. Failure to accomplish this before treatment is instituted may result in loss of the patient after the first enthusiasm of "trying something new" has died away.
2. Clinic physical therapy and occupational therapy, except for the hospitalized patient, are not practical except in the sense of providing supervision of the treatment program.
3. A home program of physical and occupational therapy must be easy and convenient to perform, yet effective. Realistically, it must be admitted that a long system of exercises, complex, expensive, or awkward apparatus, or procedures that require assistance by another person will yield disappointing results, because the patient will not or cannot carry out the procedures often enough to be effective.
4. Any assistive device must be easy to apply or to remove, be acceptable to the patient, be relatively inexpensive, and be correctly designed, not merely to support the part but to assist in the normal functional use of the part.
5. The four "M's" of treatment must be effectively combined: motivation, mobilization, measurement, and medication.

The methods to be described have been employed on nine patients, eight women and one man, whose ages ranged from 43 to 67 years, who by all the usual criteria [2b,c] undeniably had rheumatoid arthritis, and who had had the disease 4 to 27 years. No effort is made to appraise these methods critically, since such appraisal of these or any other therapeutic agents in this disease requires several years of observation. The only element of selection was to exclude patients whose long-term cooperation was doubtful or who did not exhibit the hand deformity that the various illustrations demonstrate.

Correction of the deformity of metacarpophalangeal flexion may be attempted by stretching of the palmar fascia and the anterior part of the capsule of the metacarpophalangeal joints. Finger painting, or the home equivalent with the use of soap suds or glycerin on a smooth surface, after the fashion shown in figure 1 is surprisingly effective in lessening the flexion deformity. In utilizing this procedure, the patient makes a positive effort to touch the palmar surface of the metacarpophalangeal joints to the smooth surface as the fingers are extended. The opposite hand, or the hand of another person, adds counter pressure over the dorsum of the hand and guides the motion of finger extension. The hand prints shown in figure 2 provide a means of motivation as well as measurement of palmar extensibility. Of greater importance, however, is the additional functional use made possible by the increase in extensibility of the fingers.

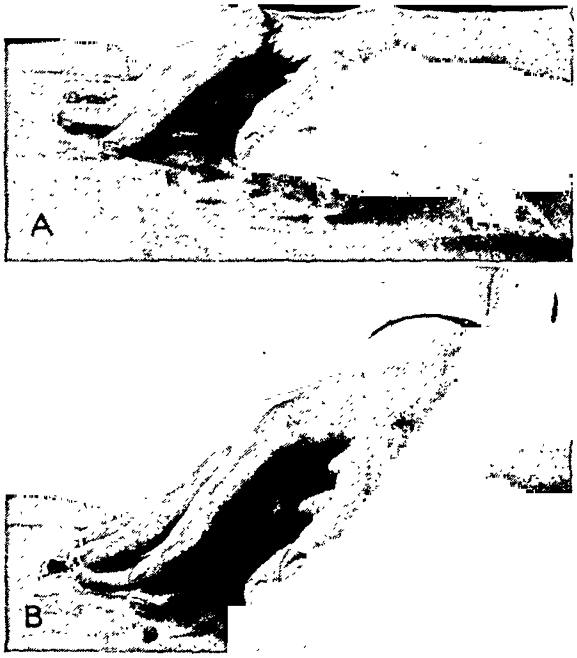

Fig. 1.—Extension at metacarpophalangeal joints. *A*, unassisted. *B*, assisted stretching.

Correction of the deformity of finger extension can, in the absence of bony ankylosis of the proximal interphalangeal joints, be accomplished by one or more modifications of the use of the inclined plane as shown in figure 3. The traditional instruction to "squeeze a rubber ball" as a means of increasing finger flexion is, in our opinion, completely futile. Its continued reiteration seems to be one of those rare instances of serial confusion in medical thinking, owing probably to the fact that no one has challenged its use. The human hand functionally is not designed to grasp a spherical object; it is best adapted to the grasp of cylindrical objects. The purpose of the exercise is to increase range of motion in the direction of finger flexion. The resistance of the rubber ball increases with its compression and exceeds the muscle strength or compressing force precisely at the point where additional range of motion is desired. We have employed the inclined plane for two reasons: it is a semicylindrical object well adapted to the function of grasp and the opposing force of the handle surface that resists compression is perpendicular to its surface, thus tending to force the fingers radialward as they grip the handle. Assisted flexion is provided by the other hand, or the hand of another person, as shown in figure 3*B*. Although this figure shows the inclined plane principle adapted to a sanding block, it is equally adaptable to any handle that must be gripped: a broom, iron, plane, saw, or hammer. The patient is carefully instructed in this procedure, as hasty, overforceful grasp or improper relationship of the remainder of the extremity to the gripping mechanism may traumatize the irritated joints and lead to more post-exercise reaction than necessary.

Correction of the deformity of ulnar deviation at the metacarpophalangeal joints may be accomplished in two ways: through exercise of the dorsal interossei with finger painting activities or by use of a simple assistive device that minimizes the effect of weakness of the dorsal interossei and permits normal flexion and extension of the fingers. Figure 4 illustrates, with the left hand, the widespread abduction of the fingers, emphasizing particularly the effort at radial deviation of the second and third fingers; the assistance of another hand provides guidance for the movement and encourages more finger abduction than initially would be possible otherwise. The paint, which, of course, is freely water-soluble, provides a crude but objective measurement of the degree of finger abduction.

In an effort to provide a continuous measure of support for the fingers, yet not inhibit hand function, numerous splints, casts, and braces of various types were employed briefly and then discarded, because they failed to satisfy the necessary criteria outlined previously. Small [3a] has described an assistive device for exercise of the hand, but the device illustrated in figure 5*B* differs from it in several important respects. It consists of a simple cotton jersey glove to which are attached hooks and eyes in such a fashion that, when rubber bands are attached to the hooks, the normal action of the finger extensors and dorsal interossei is imitated. The "origin" of these elastic bands is at the wrist, the "finger extensors" are "inserted" on the glove at the dorsum of the proximal interphalangeal joints, and the "dorsal interossei" are "inserted" on the glove on the radial side of the distal interphalang joints. The eyes provide a means of guiding the ela bands. By these means, the elastic forces can be var not only in direction but in intensity as well. The e ciency of this device may be seen in figure 6, where x-examination reveals not only complete correction of ulnar deviation of the fingers but also significant alte tion in the subluxation at the metacarpophalang joints.

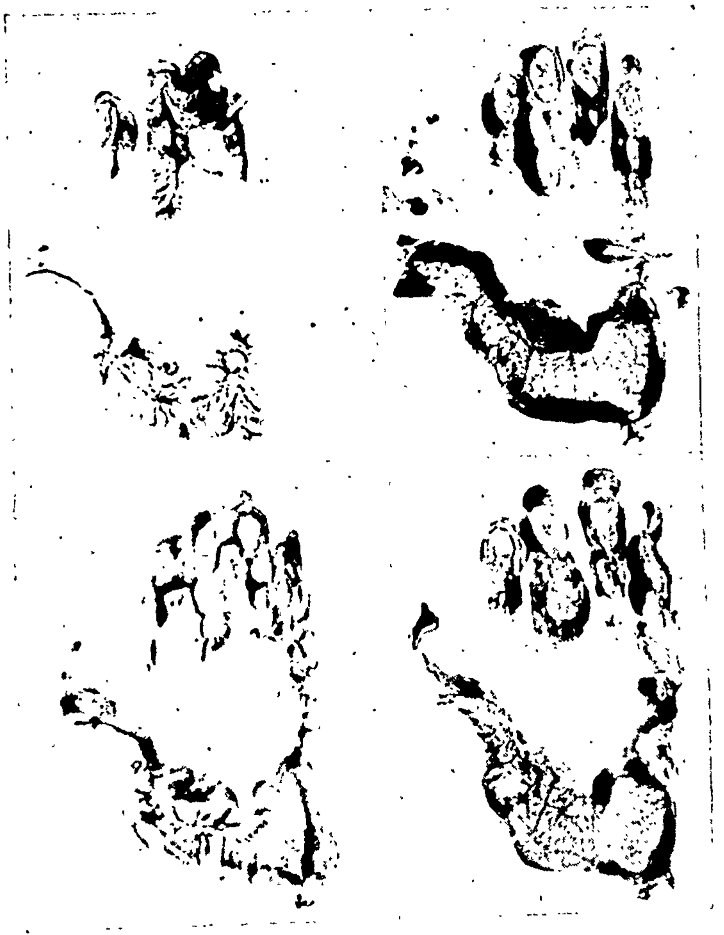

Fig. 2—Hand prints (right hand with pressure) at weekly intervals following stretching procedure shown in figure 1.

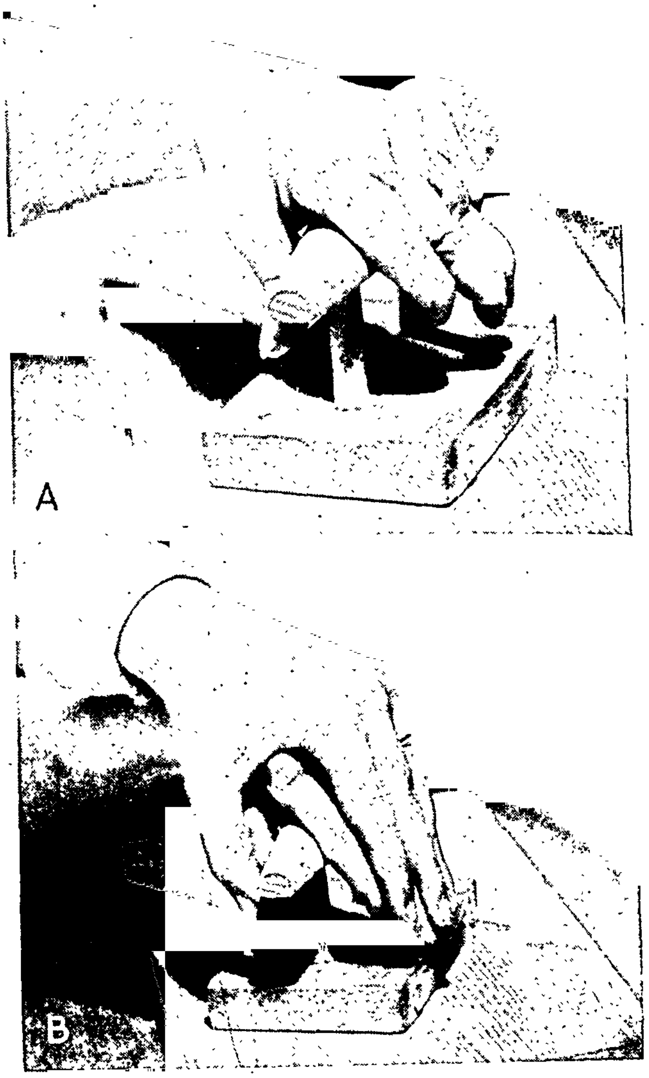

Fig. 3.—*A*, flexion at interphalangeal joints, employing inclined pl *B*, assisted flexion of fingers in radial deviation.

It should be emphasized that this device does not rect deformity directly; it merely holds the part in su position that hand function can be carried out in a m nearly normal fashion without the continuing traum attempted function on a basis of deformity. Altho assistance may be given the finger flexors by a sim arrangement of hooks and eyes on the palmar surfac the glove, these are usually unnecessary. The nor functional activity of the hand is one of finger flex and the exercise against the resistance of the elastic b soon produces increased strength in the finger flex Further, the presence of hooks and eyes on the fl surface of the glove tends to interfere some with h function. Since the objective of the device is to assist function, anything that detracts from this aim is to be avoided if possible. As with any use of the hand, excessive use of this assistive device will produce increase in joint and periarticular discomfort. It is not necessary to remove the device for rest of the part; merely unhooking the elastic bands at the wrist releases the corrective tension and provides rest. The presence of the glove seems to exert a protective action on the effects of exposure of the part to environmental influences, and patients have commented on the increased feeling of warmth in the hand and decrease in stiffness of the fingers with its use.

Pure exercises have been simplified and purposely held to a minimum. Figure 7 demonstrates, with the hand of a normal person, the basic exercises that have been adapted from Watkins [7] and Nesbitt.[8] Copies of this photograph, rather than written instructions, are provided each patient. It is our observation that it is easier for the patient to attempt to duplicate a modeled action than to follow instructions that state exactly the same thing.

## ADDITIONAL MEASURES

Although we believe the procedures described are directed primarily against the deformities produced in the hand by rheumatoid arthritis, it is realized that full advantage must also be taken when possible of other measures if the patient is to derive the maximum benefit from the treatment program. We have employed three such measures:

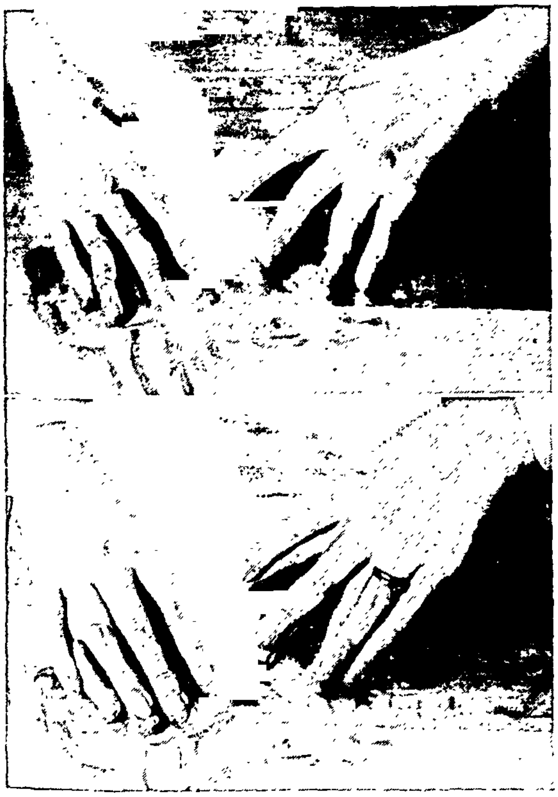

Fig. 4.—Exercise of dorsal interossei (shown with left hand). Emphasis on radial deviation of second and third fingers.

1. *Corticotropin (ACTH) or Cortisone Therapy.*—The action of either corticotropin or cortisone in diminishing rest pain, muscular and articular stiffness, or joint pain and tenderness on motion is well known. Of equal importance from the rehabilitation standpoint is their action in blocking or minimizing increased soreness, stiffness, and swelling of the part following exercise. Obviously, if such reactions can be minimized, the rate of recovery of function will be materially accelerated. On this basis, we have employed these compounds in standard doses for brief, two to four-day periods, particularly at times when the exercise program is to be intensified. When we have employed them in this fashion, we have seen little of the usual flare-up of symptoms on cessation of therapy frequently observed following treatment with these agents over a longer period of time.

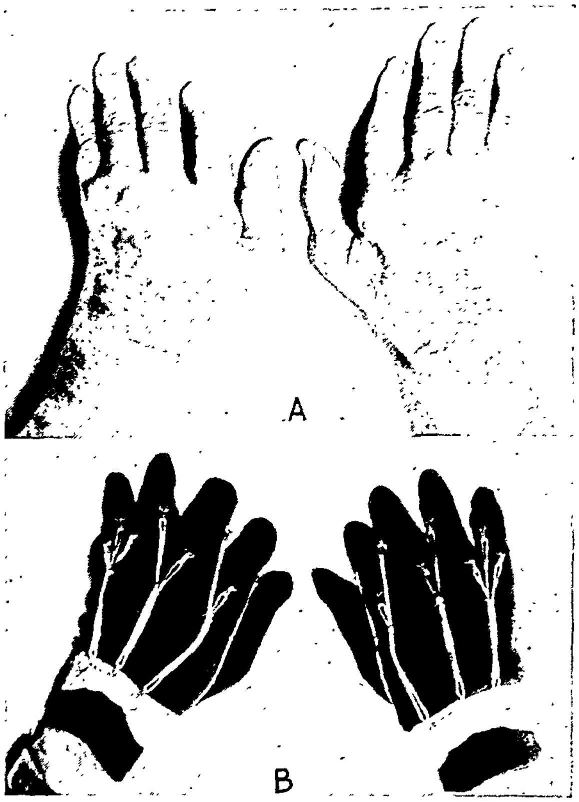

Fig. 5.—*A*, deformity of hands without assistive device. *B*, assistive device for correction of deformity of ulnar deviation. Note correction possible by proper application of tension.

2. *Orally Administered Procaine Solutions.*—The reported benefit following procaine infiltrations [9] or intravenously administered procaine solutions [10] inevitably led to attempted oral administration. Our own efforts to administer procaine hydrochloride orally in the solid form were abandoned when severe gastritis was frequently produced. However, when Roka and Lajtha [11]

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[7] Watkins, A. L.: Prescription of Physical Medicine in Office Practice, M. Clin. North America 31: 1227 (Sept.) 1947.

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demonstrated the feasibility of oral administration of solutions of procaine, this method was again tried. Current dosage schedules call for 5 cc. of a 5% aqueous solution of procaine hydrochloride three to four times daily. The bitter taste may be disguised more or less effectively by ginger ale or grape juice. We have not investigated the problem of vehicles with any degree of thoroughness, since the majority of patients prefer no vehicle, employing simply moderate dilution of the solution followed by additional water. This solution has been administered not only to this group but to more than 50 patients treated in the arthritis outpatient clinic of the University of Kansas Medical Center. In this group no gastritis has been noted. In fact, many patients have commented that salicylates no longer "upset their stomach" as much, appetite improves, and weight gain occurs.

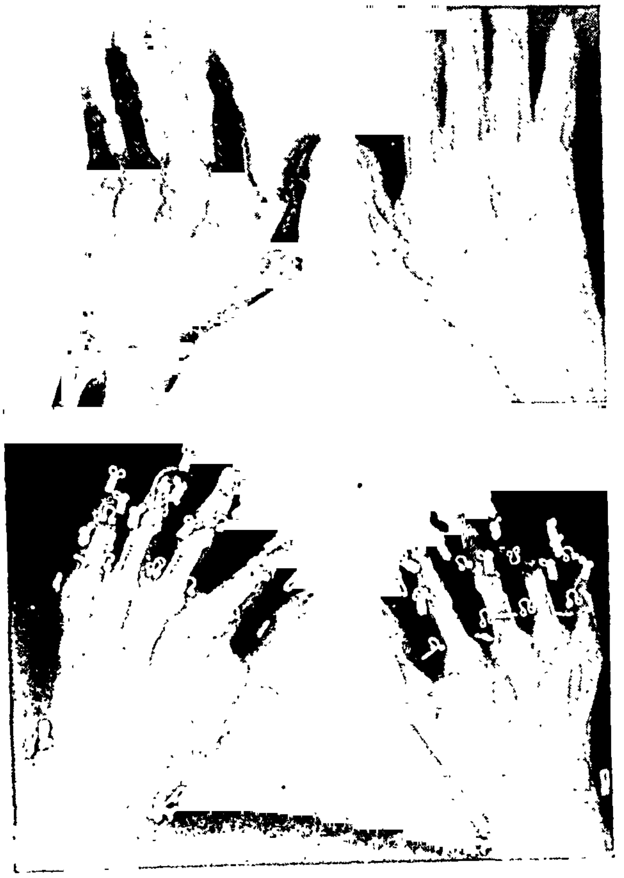

Fig. 6.—X-ray views, same positions as in figure 5. Note correction of ulnar deviation and decrease in subluxation at metacarpophalangeal joints.

Definite analgesia occurred in the majority of instances, beginning 15 to 20 minutes after ingestion and continuing for approximately four hours, and was of a quality described by some patients as comparable to heavy doses of salicylates without their side-reactions. The analgesic effect appeared to diminish with continued administration but persisted with intermittent dosage. For the latter reason, the solution is usually administered arbitrarily for three successive days, then omitted for the next four days; the drug is thus administered approximately half the time. The exact mode of action of the analgesic effect is unknown.[12] It is presumed to be hydrolyzed in the duodenum, at least as far as the paraaminobenzoic acid and diethylaminoethanol components are concerned, after oral ingestion. Neither of these latter two compounds have any striking analgesic action.[13] Preliminary studies on those patients receiving procaine solution orally indicate an absence of effect on the hemogram, including the quantitative eosinophil count and the erythrocyte sedimentation rate, and urinalysis demonstrates no alterations in the routinely examined components.

3. *Increased Attention to Nutritional Requirements.*—Obviously, no procedure will supply the deficiency in muscle bulk noted in figures 4 and 5 in the absence of an adequate nutritional balance. Although no one seriously believes that dietary regulation alone alters the course of rheumatoid arthritis, there is general agreement as to the necessity for what is vaguely termed an adequate and nutritious food intake. It has been shown [14] that severe injury or disease involving the musculoskeletal system incurs a negative nitrogen balance, which cannot be wholly corrected by dietary means or parenterally administered protein hydrolysates. Recent evidence [15] seems to indicate that testosterone propionate therapy may succeed in this respect in those patients with acute spinal cord injury. As Hellebrandt [16] has pointed out, full rehabilitation would seem impossible so long as tissue lost in the catabolic phase of invalidism was inadequatel replaced by synthesis of new protein acquired throug dietary channels. For this reason, we attempt to insur an adequate protein intake by insisting that each of ou patients ingest a minimum of 3 oz. (85 gm.) of protei supplement in addition to his regular diet. This is pre scribed in the form of one of the commercially availabl protein concentrates or as dehydrated skim milk re constituted in skim milk or its equivalent, which is jus as effective and less expensive. Supplementation of th diet by this means clinically appears to diminish fatigu and thus adds to the amount of work that the part ca accomplish.

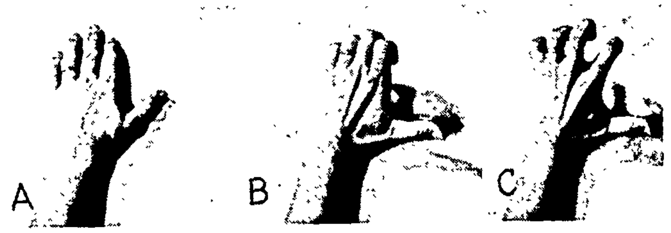

Fig. 7.—Routine exercises for the hand and fingers. *A*, resting position. *B*, finger flexion and adduction, hyperextension at metacarpophalangeal joints, radial deviation of hand and thumb. *C*, same as *B*, except for widespread abduction of flexed fingers.

## COMMENT

A word should be spoken with respect to the term rest and activity. Rest has been placed at the head treatment procedures so often that the adjectives "abs lute" and "inviolate" are being thought of in this co nection. There is nothing therapeutic about rest except insofar as it may avoid flare-ups of the disease process. A certain measure of activity is not only possible within these same limits but must be insisted on. From the timidity with which activity is permitted at times and the repeated caution to avoid pain or soreness in exercising the part, the process of rehabilitation might be a long one indeed. Not only is it important that there be an exercise-rest balance,[17] but as Hill and Holbrook [20] have noted the term tolerance must be carefully explained to the patient so that he will not stop the exercises with the onset of pain. So far as the hand program is concerned, our patients expect pain and discomfort during the exercise or use period. If the pain does not persist for several hours or increased discomfort does not result from performing the same activities the succeeding day, the patient is urged to disregard such symptoms. By insistence on increased pain tolerance, transient flare-ups of increased activity have been weathered without halting the rehabilitation efforts.

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The use of the assistive device described, even in its present crude form, has met with immediate acceptance by the patient. Several patients have made their own devices, which attests not only to the simplicity of construction but also to the factor of motivation, which is so important in the treatment effort. The device may be laundered with ease, the only precaution being to insure against wrinkling in drying. Two patients have objected to wearing the cotton glove in public but have been quite satisfied to utilize soft suede gloves under these circumstances. Initially the tension may be tolerated for 30 to 60 minute periods only. No effort is made to exceed these limits at any one time, but it is soon established by the patient that he is able to tolerate the tension for increasingly long periods before becoming aware of the joint soreness. All patients thus far have increased the range of tolerance for hand activities within one month after incorporating the assistive device principle into the treatment program.

## SUMMARY

1. A hypothesis is advanced to explain the mechanical basis for the hand deformity of ulnar deviation of the fingers at the metacarpophalangeal joints, flexion at the metacarpophalangeal joints, hyperextension of the proximal interphalangeal joints, and flexion of the distal interphalangeal joints seen late in rheumatoid arthritis.

2. Physical medicine rehabilitation measures are described that can readily be incorporated into the home activities of the average patient.

3. The use of a simple assistive device is described whereby hand function in a more nearly normal position is possible.

4. The concurrent employment of pain-relieving, reaction-blocking, and nutrition-supplementing mechanisms as necessary parts of the treatment program is emphasized.

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# CLINICAL NOTES

## EARLY PERFORATION OF INTERVENTRICULAR SEPTUM AFTER MYOCARDIAL INFARCTION

### REPORT OF A CASE WITH ANTEMORTEM DIAGNOSIS

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*and*
*John E. Gregory, M.D., Philadelphia*

Perforation of the interventricular septum following myocardial infarction is a rare complication. Since 1845, when Latham [1] first described this phenomenon, few reports have been recorded in the literature. In Sager's [2] study in 1934, there were 18 instances of septal perforation. Weber,[3] in a review of both domestic and foreign literature up to 1942, recorded 16 additional cases, including one of his own, making a total of 34 to that date. By 1948, Fowler and Failey,[4] in an excellent review, were able to add 24 cases, a total of 58. More recently reports have increased in frequency,[5] so that, with the present paper, 66 cases of acquired septal perforation are recorded in the literature.

More uncommon than the finding of an acquired septal perforation at autopsy is the recognition of this condition clinically. In Weber's [3] report of 34 cases, antemortem diagnosis was correct in only six. By 1948, clinical acumen was more acute, so that, among the 24 cases added by Fowler and Failey,[4] the condition had been properly diagnosed during life in 11. In the eight cases reported since 1948, including the present one, there was clinical recognition of the presence of an interventricular rupture in six. These figures indicate that, while the incidence of acquired septal defects is very low, the recognition of this complication of myocardial infarction during life is becoming commoner.

As has been pointed out by various authors, the diagnosis of perforation of the infarcted myocardium is not difficult. If, in a given patient who has had a recent

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[1] Latham, P. M.: Lectures on Subjects Connected with Clinical Medicine Comprising Diseases of the Heart, London, Longmans, Brown, Green and Longmans, 1845, vol. 2, p. 168.

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myocardial infarction, there develops a loud, rough systolic murmur over the lower part of the sternum, which had not been present previously, and, in addition, if a thrill can be felt in this area, the diagnosis of acquired septal perforation should be carefully considered. It was these findings, except for the presence of the thrill, with the electrocardiographic evidence of acute anteroseptal infarction, that lead to the diagnosis in our case.

## REPORT OF A CASE

A 55-year-old white man, an engineer, was admitted to the hospital, for the first time, complaining of severe retrosternal pain of two and a half hours' duration. On the night of admission, while teaching an evening class, he was suddenly seized with severe vise-like pain beneath the sternum, which radiated to the left shoulder and down the left arm. In spite of a hypodermic injection of morphine shortly after the onset of symptoms, the pain increased in severity. In addition, he stated he perspired profusely. For the past 10 days prior to the onset of his present complaint, the patient affirmed he was being treated by his private physician for an infection of the upper respiratory tract. There was no history of previous attacks of chest pain, either at rest or on effort, and there was no history of hypertension. The past history and family history were noncontributory.

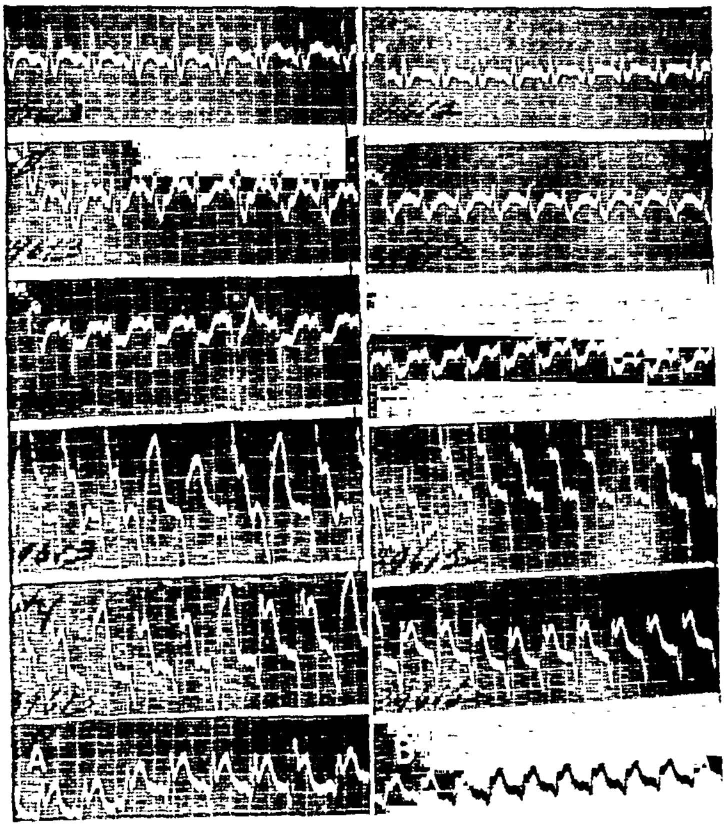

Fig. 1.—*A*, first electrocardiogram, showing sinus tachycardia and delay in intraventricular conduction time. *B*, second electrocardiogram. The S-T segment in lead 1 is less elevated, the S waves are deeper in all the leads, and T waves are flat.

Physical examination revealed that the patient was well-developed and well-nourished but in acute distress. He was extremely restless and in severe pain. His skin was cold and clammy, and there was slight cyanosis of the lips and the nail beds. There was no dyspnea or edema. His temperature was 98.3 F, pulse rate 92, and blood pressure 140/92.

The pertinent physical findings were related to the cardiovascular system. The left border of the heart was percussed just inside the midclavicular line in the fifth interspace. There was a normal sinus rhythm, at a rate of 92 per minute. There were no audible murmurs, no gallop rhythm, and no friction rub. The aortic second sound was present but not accentuated, and the pulmonic second sound was normal. There were a few moist crepitant rales present at the base of the right lung. There was no venous distention, and the liver was not palpable. Pulsations of the vessels of the extremities were normal. A diagnosis of myocardial infarction was made at this time.

On admission, the patient was given 15 mg. of morphine sulfate and 0.40 mg. of atropine sulfate by hypodermic injection. He was put at absolute bed rest and given oxygen by mask and 0.50 gm. of aminophylline in 200 cc. of 5% dextrose in water by intravenous infusion. Two hours after admission the patient continued to complain of retrosternal pain, but this was less severe than on admission. Examination at this time revealed *sinus tachycardia, with* a rate of 140, with frequent premature systoles, and with a definite gallop rhythm. No murmurs were heard, but moist crepitant rales were present at both lung bases. An electrocardiogram (fig. 1*A*) showed sinus tachycardia, with a rate of 135, and a delay in intraventricular conduction time. Frequent ventricular premature systoles were noted. The RS-T segment was elevated in lead 1 and all the precordial leads and sharply depressed in leads 2 and 3. There were deep Q waves in all the precordial leads. These findings indicated the acute stage of an anteroseptal myocardial infarction. Treatment at this time consisted of the administration of meperidine (demerol®) hydrochloride as required for pain, quinidine sulfate, and anticoagulants.

Nine hours after admission, one of us (G. D. G.) noted that the patient was slightly confused, restless, and cyanotic. His heart beat was regular (155 per minute) and there was a rough systolic murmur replacing the first sound, with maximal intensity along the lower left sternal border at about the fourth interspace; this murmur was also directly over the sternum at this level and to the right of the sternum. It ceased abruptly above the level of the fourth interspace on the right. This murmur had not been heard previously. It was felt that the murmur, along with the picture of collapse, represented a septal perforation, even though such a diagnosis was hazardous in view of the length of time after the onset of the coronary thrombosis.

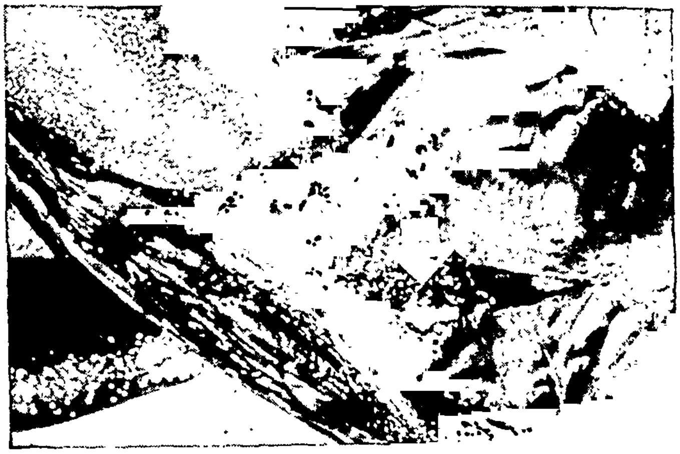

Fig. 2.—Small stellate defect in the interventricular septum.

A second electrocardiogram (fig. 1*B*) showed the RS-T segment *in lead* 1 *to be* less elevated, with deeper S waves in all of the limb leads and flat T waves; the premature ventricular systoles had disappeared, and there were no other significant changes.

Urinalysis showed a specific gravity of 1.018; the reaction was acid, and there was a distinct trace of protein. There was no sugar, and the result of the test for acetone was 1+. Microscopically, there were occasional coarse granular casts. The red blood cell count was 6,000,000, hemoglobin 16.6 gm., and white blood cell count 14,000, with 84% polymorphonuclear cells, 14% lymphocytes, and 2% monocytes. Blood urea nitrogen was 28 mg. per 100 cc. and blood sugar 65 mg. per 100 cc.

The patient's clinical condition *showed* progressive deterioration. He remained disoriented and in a state of collapse, with *a fast* heart rate and dropping blood pressure until, in the 16th hour after admission, no reading could be obtained. Pulmonary edema increased in degree, and two hours before death the patient coughed up blood-streaked sputum. He died 23 *hours* after admission, 25½ hours after the onset of symptoms.

At autopsy (Dr. F. E. Murphy) the heart was found to be moderately enlarged, owing to dilatation of both ventricles, most pronounced *on the* left. The heart weighed 340 gm. A massive infarct was seen over the anterior surface of the heart, which began 2 cm. from the coronary sulci and extended to the apex of the left ventricle and involved almost the entire width of the septum. The most striking finding was a small stellate defect in the interventricular septum, 3 mm. in diameter (fig. 2), located in the anterior edge of the septum, 4 cm. above the apex of the right ventricle.

Examination of the coronary arteries revealed the anterior descending branch to be completely occluded at a point 0.5 cm. from its origin by a reddish yellow, slightly firm, adherent thrombus. This thrombus extended for approximately 1.5 cm. Beyond this point, the lumen was greatly reduced in size and lesser branches showed variable degree of narrowing but no complete occlusion. The circumflex branch showed moderate sclerosis and calcification, with narrowing of about 30% to 50%. The right coronary showed a slightly more marked degree of narrowing, but at no point was there complete occlusion. The heart valves were not remarkable. There was moderate to marked arteriosclerosis of the aorta. The lungs were heavy, weighing 890 and 580 gm., for the left and right, respectively, with marked congestion, edema, and bloody froth in the tracheobronchial tree. Microscopic examination of tissue near the septal perforation showed an unusually large number of polymorphonuclear leukocytes (fig. 3). The muscle fibers contained no recognizable nuclei and were fragmented, but they still showed definite cross striations. There was no evidence either grossly or microscopically of hemorrhage or scarring in the septum. Sections taken elsewhere in the myocardium showed no scarring, despite the considerable degree of coronary sclerosis.

## COMMENT

The most interesting feature of this case, and the major reason for our reporting it, is the very early occurrence of the septal perforation. The diagnosis was made 12 hours after the onset of symptoms. In the series of 72 cases of myocardial perforation reported by Edmondson and Hoxie,[6] the average time of rupture was 7.4 days after onset, 78% occurring between the 3rd and 12th days. Six instances of rupture one day after infarction were noted by these authors. Mallory, White, and Salcedo-Salgar,[7] in their exhaustive study of the development and healing of myocardial infarcts, observed one case of rupture occurring one day after infarction and cited one similar case from Levine.[8] In their own series plus that of Levine,[8] a total of 17 cardiac ruptures, Mallory and co-workers [7] found that 65% occurred in the first week and 29% in the second week after infarction. The only recorded case of perforation that occurred earlier than the one herein reported was that of Hyman,[9] in which rupture of the interventricular septum was diagnosed four hours after the onset of symptoms of infarction. Death occurred in this patient 5½ hours after the first symptoms, 1½ hours after perforation was noted. In our own case, the patient died 25½ hours after the initial symptoms, or 13½ hours after diagnosis of perforation. These findings indicate the serious nature of rupture of the infarcted septum. In the literature cited above, the survival time in more than 50% is less than seven days. It must be noted, however, that Wood and Livezey [10] have reported an unusual case, with survival for almost five years.

Since rupture of infarcted myocardium is a relatively uncommon complication, the reasons for its occurrence have stimulated considerable thought. Edmondson and Hoxie [6] and Mallory, White, and Salcedo-Salgar [7] comment at some length on the factors thought to play important roles. These factors consist of hypertension, which increases the stress on the weakened wall; well-developed necrosis, the soft necrotic tissue being markedly less resistant; polymorphonuclear infiltration, since dying and dead leukocytes release proteolytic enzymes, leading to softening of the tissue; hemorrhage into the dying or dead myocardium; and, finally, the absence of scar tissue, which would obviously be more resistant. In Hyman's report,[9] there is no mention of blood pressure and no microscopic description is included, but the gross examination revealed that the perforation occurred in an area of myocardial hemorrhage.

In our own case there is, as has been mentioned, an excess number of polymorphonuclear leukocytes and an absence of scarring. Furthermore, the blood pressure was 140/92 after infarction and before perforation occurred. While there was no knowledge of previous hypertension, it may be safely said that, in a patient with as massive an infarct as was present in our patient, these levels are higher than are usually encountered. The postmortem findings, which revealed the weight of the heart to be only 340 gm., with absence of left ventricular hypertrophy, was in keeping with the history of normotension. Thus, in this case there was what might be called "relative" hypertension, associated with the excess leuko-

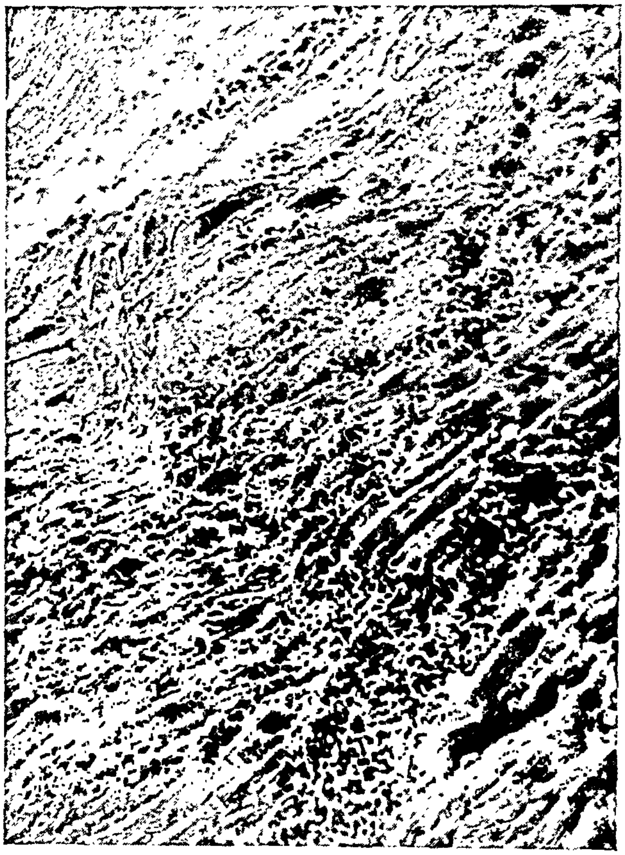

Fig. 3.—Photomicrograph of tissue near the septal perforation, showing polymorphonuclear leukocytes.

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cytes and an absence of scarring, three of the five factors mentioned above. An additional factor worth consideration in the production of rupture in this case was the early onset of a severe degree of cardiac failure. This complication of acute left ventricular failure occurred shortly after the patient's admission to the hospital, approximately seven hours prior to the clinical suspicion of interventricular perforation. During this period, the blood pressure at the level described above was maintained. The compensatory mechanisms that result in an increase in the systolic and diastolic volume of blood in the left ventricle, plus the increase in intraventricular pressure, added to the previously mentioned factors, may well have been the most important factors in the development of interventricular rupture. It should be pointed out that, if the factors tending to produce rupture are present and if the patient is seen after the first 12 hours, clinical evidence of septal rupture may be encountered on first examination. Obviously, early rupture represents the early development of factors leading to disintegration of the wall, or the concomitant presence of several of them, or the activity of one or more of them to an unusually marked degree.

### SUMMARY

A case of perforation of the interventricular septum 12 hours after onset of symptoms of myocardial infarction is reported. It is pointed out that clinical recognition of this complication during life is not difficult and is being accomplished with increasing frequency. Possible factors in early perforation are discussed.

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# PNEUMATOSIS OF THE COLON

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Pneumatosis intestinalis may be defined as the intramural presence of gas within the intestinal tract. It has previously been recorded under various descriptive titles: "intestinal emphysema," "emphysema of the cecum," "gas cysts of the intestine" (pneumatosis cystoides intestini), and "pseudocysts." The case to be presented is unusual in that it involved the left side of the colon and the symptoms developed with dramatic suddenness after sigmoidoscopy. In view of the rectal pathological condition seen by the sigmoidoscopist, the possibility that the pneumatosis of the colon predated his examination, though unlikely, cannot be excluded.

## REPORT OF A CASE

Mrs. E. A., 55, was seen by her physician because of rectal bleeding of three weeks' duration. Her past history was noncontributory for tuberculosis, diabetes, and intestinal disease. An appendectomy had been performed 25 years previously. Rectal examination revealed internal hemorrhoids, but sigmoidoscopy was performed to eliminate other possible causes of rectal bleeding. The rectosigmoid was covered by a thin, gray exudate, overlying a reddish, slightly hypertrophic mucosa that resembled granulation tissue. The operator was impressed by the unusual granular mucosa in this region. Immediately after the removal of the instrument, the patient complained of severe, diffuse, abdominal pain. The pain was of such intensity that she was admitted to the hospital. The abdomen was moderately tense, with tenderness over the descending colon. The sigmoid could be palpated as a doughy mass. Laboratory examination disclosed no abnormalities. A barium enema was performed. The first was unsuccessful; the second one revealed the typical picture of pneumatosis of the colon. The lumen of the colon was narrowed from the sigmoid to the distal transverse colon and compressed by huge intramural air pockets, leaving only a thin streak of barium. There was no other abnormality throughout the entire large bowel. There was no evidence of any free air under the diaphragm (fig 1). The symptoms of abdominal pain and constipation remained intense for a period of one week and then gradually decreased. She was discharged from the hospital and seen intermittently thereafter. As late as six months after the original trauma, symptoms of abdominal distress persisted, with intermittent constipation and a sense of fulness following evacuation. X-rays taken at this time continued to display the intramural, hugh, round air sacs compressing the lumen of the descending colon (fig. 2).

## COMMENT

The cause of pneumatosis intestinalis has been variously identified. Some have expressed the belief that it is due to gas production by bacteria,[1] but organisms have rarely been identified on culture. Moore [2] has advanced the theory that it is the result of mechanical phenomena due to a break in the continuity of the mucosa in association with increased intraluminal pressure. The condition may follow ulceration of the mucosal wall. The condition in more than 55% of the 85 cases of pneumatosis reported by the British investigators, Nitch and Shattock,[3] was associated with duodenal or gastric ulcer. Most instances of pneumatosis of the large bowel have been reported to occur in the cecum, in association with ulcers at the base of the appendix.[4]

The gross pathological condition is generally dependent on the location and the degree of air infiltration. These air pockets take the form of discrete, localized or diffuse vesicles along the course of the bowel. They usually appear sessile but may be pedunculated, sausage-shaped, or spherical. There is no characteristic histopathological picture, though some authors have described giant cell formation, presumably the result of a chronic, granulomatous, inflammatory process. The gas appears to be forced into the wall of the bowel, either submucosal or subserosal, and dissects its way beneath the serosal layer, limited only by the peritoneal attachments. Occasionally this dissection takes place beneath the layers of peritoneum, to lodge subdiaphragmatically. It may be important to consider this condition in the etiology of spontaneous pneumoperitoneum when the cause is not apparent. Finally, as the gas accumulates in the wall of the bowel (in children the gas pockets are more commonly found in the submucosa and in adults in the subserosa),[2] it produces an invagination of the mucosal or muscular coats with a reduction in the diameter of the

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[1] Bang, B. L. F.: Luftholdige kyster i väggen af ileum og i nydannet bindeväv på sammes serosa, Nord. med. Ark. **8**: 1, 1876; cited by Jackson, J. A.: Gas Cysts of the Intestine, Surg., Gynec. & Obst. **71**: 675-678, 1940. Feldman, M.: Clinical Roentgenology of the Digestive Tract, ed. 3, Baltimore, The Williams & Wilkins Company, 1948, p. 418.

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[3] Nitch, C. A. R., and Shattock, S. G.: Diffuse Emphysema of Intestinal Wall (Two Cases) with Remarks upon Pneumatosis, Proc. Roy. Soc. Med. (Section of Pathology) **12**: 46, 1919.

[4] Lerner, H. H., and Gazin, A. I.: Pneumatosis Intestinalis: Its Roentgenologic Diagnosis, Am. J. Roentgenol. **56**: 464, 1946.

lumen, resulting in partial or even complete obstruction. Jackson[5] has described a case in which volvulus developed as a complication of pneumatosis of the small bowel.

The symptoms usually have been those of incomplete intestinal obstruction, namely, colicky pain and constipation; more frequently than not, the symptoms of the primary condition overshadow those of the pneumatosis, so that the latter may be unrecognized. On physical examination, one may palpate a boggy tumor in either lower abdominal quadrant. The bowel is tender and may feel "spongy." Some[6] have described a characteristic change in position of the tumor from day to day. The diagnosis has ranged from appendicitis and appendiceal abscess to carcinoma. In many cases surgical exploration was done because the symptoms and signs were pathognomic of peritoneal irritation. At operation the intestine exhibits grayish, rounded, crepitant, yielding masses where the gas cysts "balloon out" the surface of the intestinal wall. Burt[7] reported a case of pneumatosis of the left half of the colon, associated with subcutaneous emphysema, following excision of an anorectal fistula. Postoperatively his patient showed signs of peritoneal irritation and emphysema extending over the entire left portion of the abdomen and the lower part of the chest. A laparotomy was performed, and free air was encountered in the subcutaneous tissue, subperitoneal tissue, and mesentery of the entire left side of the colon.

The x-ray picture is typical. Areas of increased translucency (filling defects) lie between the lumen (outlined by the contrast medium) and the outer margin of the intestinal canal and may extend for variable distances along the bowel. It is impossible to fill out completely the lumen of the bowel, because of the pressure exerted by the tense gas cysts. These filling defects are inconstant and variable in size and often shift their position daily. Frequently, the lumen is compressed concentrically and the contrast medium appears as a thin, irregular stream in the midline of the colon, with air shadows extending on either side of the bowel silhouette.

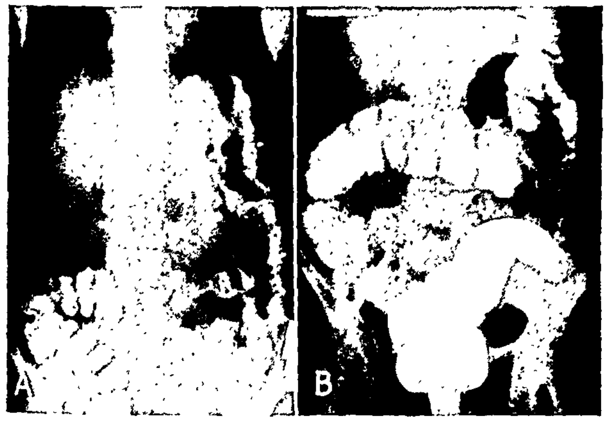

Fig. 1.—*A*, barium enema examination reveals a narrowed eccentric lumen compressed by huge air pockets extending from the sigmoid to the distal transverse colon. *B*, the lumen of the descending colon is more distinctly narrowed, but barium passes readily into the remainder of the large bowel.

The treatment is conservative unless complete obstruction supervenes. As a rule the gas is absorbed after a variable period of time, with disappearance of all symptoms. There are available several reports of patients with pneumatosis intestinalis diagnosed by x-ray examination in whom evidence of the earlier condition was not visualized in subsequent surgery for other causes.

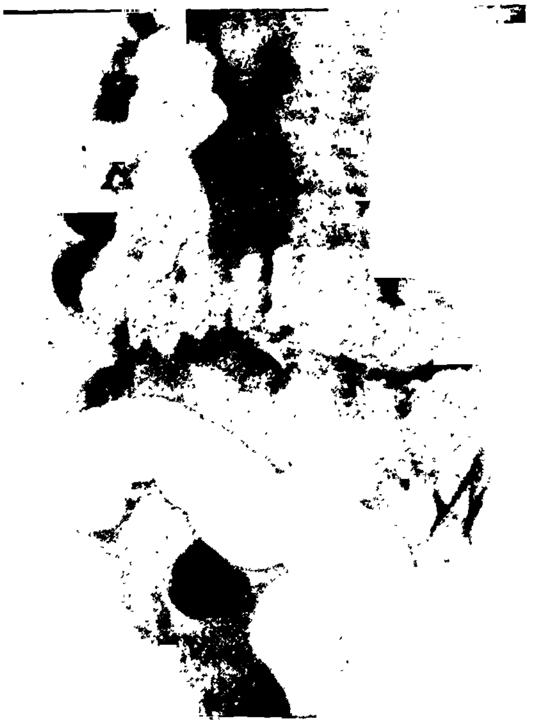

Fig. 2.—Reexamination six months later still reveals the large air pockets involving the left colon. The lumen is narrowed, and the air cysts create a scalloped effect on the barium column. There is little change in the appearance of the pneumatosis as compared with that in the previous examination.

## SUMMARY

A case of pneumatosis of the colon with the characteristic symptoms and roentgen picture, involving the left side of the colon, is reported. In view of the possibility that the onset of the pneumatosis in this case was induced by sigmoidoscopy, we wish to suggest trauma as an etiological agent in the production of this syndrome.

1075 Park Ave. (Dr. Marshak).

[5] Jackson, J. A: Gas Cysts of the Intestine, *Surg., Gynec. & Obst.* **71**: 675-678, 1940.

[6] Nitch and Shattock.[3] Jackson.[7]

[7] Burt, C. A. V.: Emphysematous Acute Abdomen and Subcutaneous Emphysema from Intrarectal Operation, Ann. Surg. **130**: 277, 1949.

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**Megaloblastic Anemia in Infancy.**—Megaloblastic anemia in infancy is a nutritional anemia which responds specificially to folic acid. It is one of the last entities to be separated from the ill defined syndrome of von Jaksch's anemia. It occurs between the fifth and eleventh month, as a rule, and is due either to a deficiency of folic acid in the diet or to an inability of the infant to absorb and utilize this vitamin. Human milk and goat's milk contain less folic acid than cow's milk and infants fed exclusively on human or goat's milk are more apt to develop this syndrome, particularly if there is also a deficiency of ascorbic acid in the diet. The response to oral administration of folic acid is prompt. Ascorbic acid may also be required if a deficiency exists. Vitamin $B_{12}$ is less effective than folic acid. The best regimen for control of this anemia is obtained by the oral administration of folic acid 15 mg. daily and ascorbic acid 100 mg. daily. In severely ill babies, liver extract—2 cc.—may be used intramuscularly as well.—Mila I. Pierce, Management of Anemia Childhood, *Postgraduate Medicine*, January,

# TALC PNEUMOCONIOSIS

*Paul S. Friedman, M.D.*
*Milton A. Bell, M.D.*
*and*
*Leon Solis-Cohen, M.D., Philadelphia*

There is increasing evidence that occupational inhalation of pulmonary irritants is one of the major causes of pulmonary fibrosis. Free silica is a common etiologic agent. Talc, a hydrous magnesium silicate, is an unusual cause for such pneumoconiosis. The following case demonstrates the roentgen and clinical characteristics of talc pneumoconiosis.

## REPORT OF A CASE

The patient, a 65-year-old white man, was referred for roentgen study of the chest on June 19, 1950, because of a chronic cough which was intensified during the preceding week. He had a cough of many years' duration accompanied by production of frothy sputum. On June 9, 1950, sneezing, coryza, intensified cough, and purulent postnasal discharge and expectoration developed. There was accompanying onset of exertional dyspnea. Walking three blocks caused dyspnea.

For a period of 24 years since 1926, he had been employed in the handling and packaging of elastic cord (rubber thread) coated with talc powder. In the handling of this rubber, he removed rubber ribbons, heavily coated with talc, from their containing box. He fed one end of the rubber into a reed that separated the strands; the rubber strands then passed onto a spindle which made skeins or cones of rubber thread. From the moment the containing box was opened, the atmosphere of the working place was cloudy with talc powder. No exhaust or ventilating fans were present. In 1914 a right thoracotomy for empyema was performed.

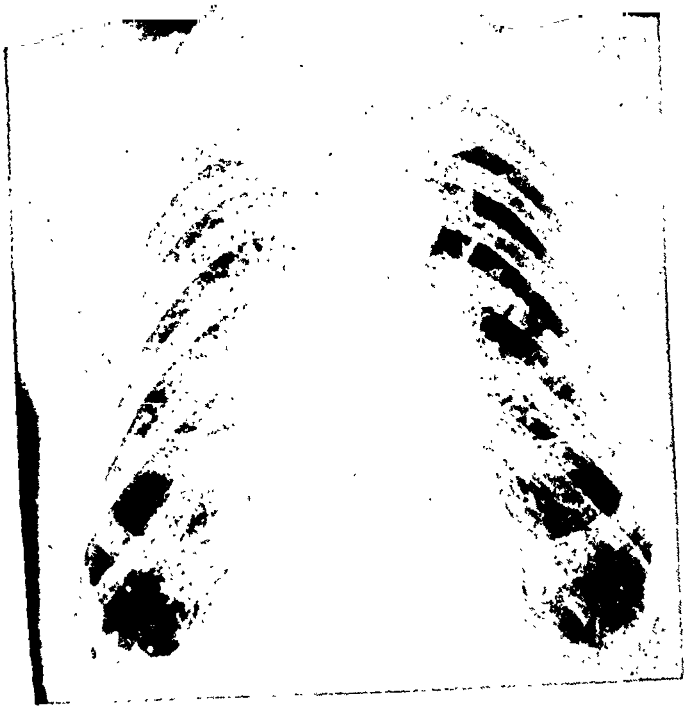

Fig. 1.—Chest, posteroanterior projection. This demonstrates diffuse pulmonary fibrosis, pulmonary emphysema, pleural thickening, and talc plaque in right upper hemithorax.

Physical examination on June 9 revealed a thin, white man with a temperature of 99.4 F, a pulse rate of 112, and blood pressure of 110/74. There was mucopurulent nasal secretion. There was a thoracotomy scar over the right lower posterior hemithorax. Chest expansion was restricted. Coarse moist rales as well as areas of bronchial breathing were present throughout both lungs. No clubbing of the fingers was present. The patient was treated with bed rest. He received penicillin orally, intramuscularly, and by nose drops.

On June 13, he was clinically improved and returned to work. Temperature and pulse rate were normal. Cough was less prominent, but dyspnea was still marked on walking four blocks or uphill. There was minimal night cough when he was recumbent. There were momentary episodes of respiratory obstructior Coarse moist rales were still heard over the lower lobe of th right lung. Fluoroscopic and radiographic study of the chest o June 19 revealed marked reduction in thoracic respiratory mc bility. There was reduced diaphragmatic excursion durin respiration.

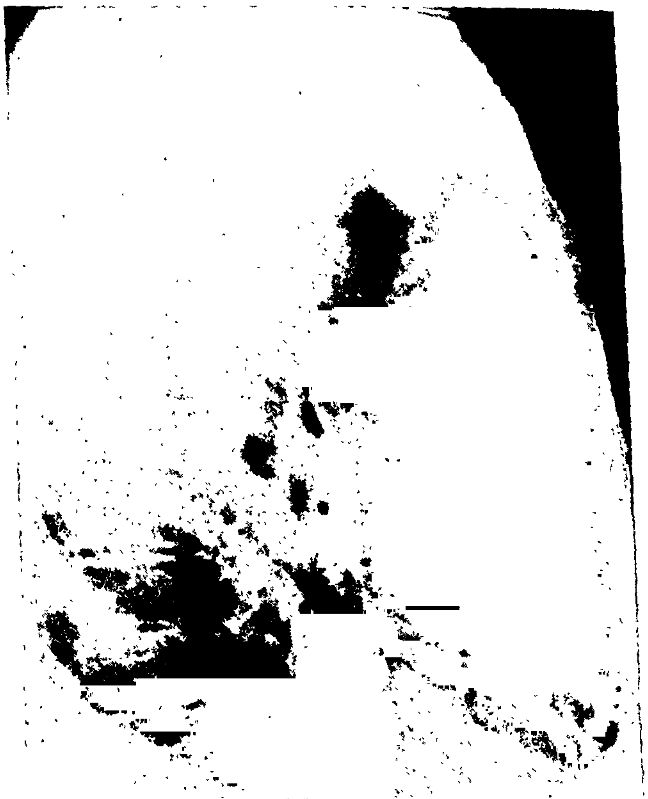

Fig. 2.—Chest, lateral projection. Note increased anteroposterior di ameter accompanying the pulmonary emphysema, foci of pulmonar calcification.

*Lungs.*—There was evidence of diffuse pulmonary emph sema, characterized by low position of the diaphragm and i creased anteroposterior thoracic diameter. There was diffu linear intensification of the pulmonic markings owing to pulm nary fibrosis. This was most prominent in the right lung. Stab foci of calcification due to previous tuberculous infection we visualized in the upper lobe and hilar region of the left lung (f 1 and 2).

*Pleura.*—There was thickened pleura present, most promin on the right, where it produced stragihtening of the right he diaphragm. A linear homogeneous opacity, 9 cm. in length a 1 cm. in width, was demonstrated in the upper right hemithor Its axis was obliquely vertical, and it apparently represente talc pleural plaque.

*Heart and Mediastinal Structures.*—There was no abnorn mobility during respiration. The heart was not measura enlarged. There was increased convexity of the left cardiac bor owing to prominence of the right ventricle. Elongation of aorta due to arteriosclerosis was present. The sputum was ne tive for tubercle bacilli.

A mixed catarrhal vaccine series was administered in an tempt to improve immunity to respiratory pathogens. Penici has been used periodically for acute episodes of tracheob chitis with purulent secretions. The patient has been relati comfortable though not entirely free of cough.

An electrocardiogram on Feb. 13, 1951, revealed low amplitude of the QRS component in the limb leads. It was otherwise natural.

### COMMENT

Talc pneumoconiosis has been described in talc miners and millers. Since talc is used industrially as a filler, as a dusting powder, and as an absorbent, the possibility of excessive exposure is not a limited one. Bethene, in 1935, experimentally demonstrated its irritant characteristics when pleural adhesions were caused in cats and dogs by the intrapleural insufflation of talc powder. Since the free silica content of talc is 0.5% or less, its irritant characteristics are apparently not a result of its free silica content.

Clinically, talc pneumoconiosis usually caused dyspnea, chronic cough, chest pain, and fatigue. The dyspnea is usually more intense than the roentgen manifestations of fibrosis would suggest. Limited chest expansion is invariably present. The patients are usually thin, minimally cachectic in appearance, and in 70% of cases exhibit curving nails or clubbed fingers. The patient described herein exhibited all of these changes except clubbing of the fingers.

The roentgen changes resulting from talc pneumoconiosis are characterized by fibrosis, emphysema, pleural thickening, pleural and subpleural plaques ("talc plaques"), and a minimally increased incidence of tuberculous infection. The fibrosis is of a fine linear and granular character, similar in type to that visualized in asbestosis. It tends to be most intense in the midportions of the lungs, extending into the basilar segments of the lower lobes. A moderate degree of diffuse pulmonary emphysema is present. Partially owing to the emphysema and partially owing to the pulmonary fibrosis, there is a prominence of hilar and intrapulmonic segments of the pulmonary arteries.

The pleura exhibits diffuse thickening and fibrosis. In addition, linear areas of pleural density, so-called talc plaques, occur. These were seen in 6.3% of all talc miners.[1] They occur in the peripheral and subpleural aspects of the visceral pleura. These may vary from single, linear, homogeneous, sharply marginated opacities, several centimeters in length, to irregularly shaped, extensive opacities of varying density. It is felt these occur secondary to accumulation of talc in peripheral lymphatics with lymphatic dilatation and stasis, associated with calcium localization.

There has been suggestive statistical evidence of increased susceptibility to significant tuberculous infection.

### SUMMARY

A case of talc pneumoconiosis is reported with typical clinical and roentgen characteristics. This report seemed indicated in order to direct attention to talc as an occupational hazard and to the probable significance of other inhaled pulmonary irritants as causative agents in unexplained pulmonary fibrosis.

1422 Chestnut St. (Dr. Friedman).

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[1] Greenburg, L.: The Dust Hazard in Tremolite Talc Mining, Yale J. Biol. & Med. **19**: 481-501 (March) 1947.

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# BRONCHOGRAPHY IN IODINE SENSITIVITY

*Peter A. Theodos, M.D., Philadelphia*

The instillation of iodized oil into the bronchial tree is widely used in the diagnosis of bronchiectasis, the delineation of distorted or obstructed bronchi, and the determination of communications between bronchi and the pleura, skin, or air cysts. All the radiopaque preparations commonly used in bronchography today contain iodine. Those most frequently used are lipiodol,® which contains 40% iodine in poppyseed oil, and iodochloral,® which contains 27% iodine and 7.5% chlorine in organic combination with highly refined peanut oil. Bronchography with these agents is usually innocuous, but untoward reactions, such as iododerma and asthma-like reactions with fatal outcome in two cases, have been reported.[1] It is imperative, therefore, that proper inquiry be made as to sensitivity to iodine prior to the use of any iodine-containing contrast medium.

A patient with suspected bronchiectasis was recently admitted to the hospital for study. The presence of pronounced iodine sensitivity made the use of iodized oil as a contrast medium for bronchography inadvisable and even hazardous. However, since the use of corticotropin (ACTH) had been reported in the treatment of sensitivity to iodine,[2] it was decided to carry out the iodized oil study after preliminary desensitization with corticotropin. A satisfactory bronchogram with minimal reactions was obtained. Because of this favorable outcome, the following report is considered of interest:

### REPORT OF CASE

I. O., a 46-year-old white woman, was first seen in October, 1950, because of severe paroxysmal cough, copious foul expectoration, and pain in the left lower part of the chest posteriorly. A diagnosis of suspected bronchiectasis had previously been made, in 1944, after an iodized oil study. At that time severe swelling of the submaxillary glands developed, along with "blotches all over the body resembling strawberry hives," which lasted 10 days after the bronchogram. Subsequent bronchograms, in 1945 and 1947, again produced reactions manifested by swelling of the submaxillary glands, fever, and hives. Although these studies revealed equivocal evidence of bronchiectasis in the lower lobe of the left lung, a segmented resection was done in 1947. Symptoms were then few, until November, 1948, when cough recurred. This had become progressively severer and was productive of several cups of foul sputum daily at the time of the patient's admission to the hospital.

Physical examination disclosed nothing essentially abnormal except in the lungs, where there was impairment of percussion and distant breath sounds over the lower lobe of the left lung. No rales were heard.

Fluoroscopic and roentgenographic examinations revealed portions of the posterior segments of the 9th and 10th ribs to be missing. The left side of the diaphragm was slightly elevated

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From the Barton Memorial Division and the Department of Medicine, Jefferson Medical College Hospital.

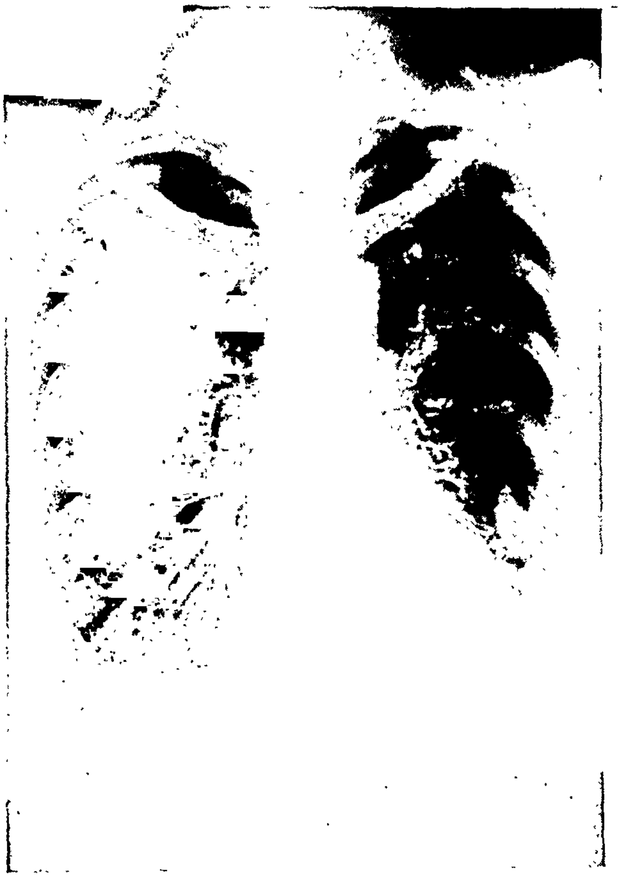
[1] Belote, G. H.: Iododerma from Iodized Oil, J. A. M. A. 89: 882, 1927. O'Donovon, W. J.: Intratracheal Injection of Lipiodol; Generalized Iodide Eruption: Death, Brit. M. J. **2**: 935, 1927. Carmichael, J.: Iodine Poisoning and Iodism from Lipiodol, Canad. M. A. J. [illegible], 1932. Scadding, J. G.: Acute Iodism Following Lipiodol Bronchography, Brit. M. J. **2**: 1147, 1934. Goldstein, D. W.: Fatal Iododerma Following Injection of Iodized Oil for Pulmonary Diagnosis, J. A. M. A. **106**: 1659, 1936.

[2] Ruh, A. R.: Hypersensitivity in Disease, with Special Reference to Periarteritis Nodosa, Rheumatic Fever, Disseminated Lupus Erythematosus and Rheumatoid Arthritis, Harvey Lect. **42**: 106, 1946-1947.

and moved sluggishly. The heart was slightly deviated to the left. A minimal degree of scattered fibrosis was present in both lungs.

Bronchoscopic examination revealed the mucosa to be moderately inflamed throughout. The bronchial orifices were all easily visualized and were all normal in contour. It was not possible to demonstrate the bronchial stumps or any evidence of a bronchopleural fistula. A small amount of greyish secretion was aspirated from both bronchial tubes, which revealed no acid-fast bacilli on smear and culture.

A blood cell count revealed hemoglobin 12.5 gm., red blood cells 3,950,000 per cubic millimeter, white blood cells 10,000 per cubic millimeter, segmented neutrophils 50%, lymphocytes 40%, monocytes 6%, and eosinophils 4%. The urine was normal except for a specific gravity of 1.010. Four plain smears of the sputum, which measured 30 to 127 gm. a day, revealed no acid-fast bacilli. Culture of the bronchial secretions revealed Streptococcus viridans, Streptococcus nonhemolyticus, Staphylococcus albus, and nonpathogenic Neisseria.



Bronchogram obtained after desensitization with corticotropin (ACTH). There were no abnormalities except for minimal cylindrical bronchiectasis of the posterior segment of the lower lobe of the left lung.

The presence of a bronchopleural fistula or residual bronchiectasis was suspected, and an iodized oil study was advised. The patient, however, refused to have this done, because of her previous reactions and because she had been warned by several physicians that she was sensitive to iodine and might die from the reaction. Tests for iodine sensitivity were performed. A scratch test was made, with the use of one drop of chloriodized oil (iodochloral®) on the flexor surface of the left arm. No reaction was noted within 48 hours. The test was repeated, with 0.1 cc. given subcutaneously. Slight elevation and reddening of the injected area were noted in 48 hours. Several days later the patient was given 5 minims (0.30 cc.) of a saturated solution of potassium iodide orally. Marked swelling of the submaxillary glands developed in seven hours and lasted four days. At the same time she complained of malaise and manifested a few red blotches on her arms, which persisted for 48 hours.

Desensitization with corticotropin was then carried out. The patient was given 20 mg. twice a day for four days and then 10 mg. daily for five days. On the third day of therapy a bronchogram, with chloriodized oil, was attempted by the gravity method. No oil was gotten into the bronchi, owing to an irritable throat and laryngeal spasm. However, about 10 cc. of the oil was swallowed. Very slight swelling of the submaxillary glands developed in five hours, which lasted several hours. The next day a catheter was inserted through a laryngoscope and 15 cc. of chloriodized oil injected into both lungs under fluoroscopic guidance. Excellent visualization of the entire bronchial tree was obtained, with normal findings except for minimal cylindrical bronchiectasis of the posterior segment of the lower lobe of the left lung (see accompanying figure). Only a slight reaction was experienced by the patient, which lasted several hours and which in no way compared with those she had previously experienced. Repair of the operative scar and excision of the lower lobe of the left lung was subsequently carried out successfully, with considerable symptomatic relief and alleviation of the pain.

## COMMENT

The infrequency of severe reactions following iodized oil studies is probably due to the stable chemical combination between the iodine and the unsaturated fats in the oil. Elimination of the iodine from the body is effected mechanically through the cough reflex and by absorption through the usual body channels. Most of the oil is generally expectorated within three hours. Little decomposition of the oil occurs in the lung, but rapid breakdown and absorption of the liberated iodine occurs in the gastrointestinal tract. Various authors have reported that the toxic and allergic phenomena occur only when the oil reaches the gastrointestinal tract. It seems likely, therefore, that severe reactions in patients allergic to iodine may occur if the iodized oil is swallowed during or shortly after bronchography.

The effectiveness of corticotropin therapy in enabling a sensitive patient to tolerate the use of iodized oil is well exemplified in this case. The exact mechanism of action has not been established but is probably related to the corticotropin stimulation of the adrenals. This allows the cells of the body to function in a relatively normal physiological manner, despite the hypersensitivity that is inhibited or reversed. With the small doses necessary to effect desensitization, the commonly reported side-effects and complications to such hormonal therapy need not be feared. It will be possible, therefore, to carry out bronchographic study successfully and safely in the face of what previously has been considered a distinct contraindication.

## SUMMARY

A case of iodine sensitivity is reported in which bronchographic study with an iodine-containing contrast medium was successfully carried out after desensitization with corticotropin (ACTH).

1930 Chestnut St.

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**Treatment of Breast Abscess.**—The best—easily the best, and perhaps the only—way to treat a breast abscess is to make a radial incision as soon as the overlying skin becomes oedematous. The incision need be no longer than is required to insert the index-finger, which then breaks down the adhesion; and a small soft drain is inserted into what should at this stage be a relatively small and simple cavity. Parenteral penicillin is prescribed to exorcise *the surrounding* cellulitis, and in nineteen cases out of twenty the abscess heals without more suffering to the patient than is occasioned by introducing thiopentone into a vein. In the treatment of diseases of the breast the hollow needle, whether to aspirate abscesses, to puncture cysts, or in cases of suspected carcinoma to perform what is termed a "drill biopsy," had better be left to those who have a particular skill, a peculiar disposition, or a poverty-stricken comprehension.—H. J. B. Atkins, Pain in the Breast, *Lancet,* Feb. 9, 1952.

# COUNCIL ON FOODS AND NUTRITION

*The following products have been accepted as conforming to the rules of the Council on Foods and Nutrition.*

JAMES R. WILSON, M.D., *Secretary.*

**Armour and Company, Chicago, Packer; Gerber Products Company, Fremont, Michigan, Distributor.**

GERBER-ARMOUR CHOPPED PORK is made from meats (trimmed of fat, sinews and connective sheaths) with added salt, prepared under inspection of the Meat Inspection Division of the United States Department of Agriculture.

*Analysis* (submitted by manufacturer).—Total solids 27.9%, moisture 72.1%, ash 1.5%, fat 6.5%, protein (N × 6.25) 19.7%, carbohydrates (none), crude fiber (none), and salt 0.5%.

| *Vitamins and Minerals* | Mg. per 100 Gm. |
|---|---|
| Thiamine | 0.158 |
| Riboflavin | 0.246 |
| Nicotinic acid | 2.45 |
| Pyridoxine | 0.28 |
| Calcium | 10 |
| Phosphorus | 133 |
| Iron | 0.9 |

*Calories.*—1.38 per gram; 39.1 per ounce.

*Use.*—For use in the feeding of older infants and young children.

**Beech-Nut Packing Company, Canajoharie, New York.**

BEECH-NUT COOKED CORN CEREAL. Ingredients: Corn meal, malt syrup, di-calcium phosphate, yeast, salt, sodium iron pyrophosphate, niacinamide, thiamine hydrochloride, and riboflavin.

*Analysis* (submitted by manufacturer).—Total solids 93.8%, moisture 6.2%, ash 4.5%, fat (acid hydrolysis) 3.0%, protein 6.5%, crude fiber 1.0%, and carbohydrates 78.8%.

| Vitamins and Minerals | Mg. per 100 Gm. |
|---|---|
| Thiamine | 1.6 |
| Riboflavin | 1.5 |
| Nicotinic acid | 3.5 |
| Calcium | 800 |
| Phosphorus | 900 |
| Iron | 50 |

*Calories.*—3.6 per gram; 104 per ounce.

*Use.*—For use in the feeding of infants and young children.

**Dairyland Cooperative Association, Juneau, Wisconsin.**

PAR-EX. Ingredients: Evaporated milk, vitamin $D_3$, Dyne (irradiated 7-dehydrocholesterol), thiamine, U.S.P., nicotinic acid, U.S.P., ascorbic acid, U.S.P., ferrous sulfate, U.S.P., copper sulfate, U.S.P., manganese sulfate, U.S.P., di-sodium phosphate less than 0.1%.

*Analysis* (submitted by manufacturer).—Total solids 26.0%, moisture 74.0%, ash 0.7%, fat 7.9%, protein (N × 6.35) 7.0%, carbohydrate 9.4%.

| Vitamins and Minerals | Per Can (12 Fluidounces) | |
|---|---|---|
| Vitamin A | 1,500 | U.S.P. Units |
| Thiamine | 0.5 | mg. |
| Riboflavin | 1.0 | mg. |
| Ascorbic acid | 50.0 | mg. |
| Vitamin $D_3$ (irradiated 7-dehydrocholesterol) | 800 | U.S.P. Units |
| Nicotinic acid | 5.0 | mg. |
| Calcium | 800 | mg. |
| Phosphorus | 800 | mg. |
| Iron | 10.0 | mg. |
| Manganese | 1.0 | mg. |
| Copper | 1.0 | mg. |

*Calories.*—569 per can, 43 per fluidounce.

*Use.*—For use in infant feeding.

**Libby, McNeill & Libby, Chicago.**

LIBBY'S STRAINED AND HOMOGENIZED BANANA PUDDING. Ingredients: Banana puree, milk solids (non-fat), wheat starch, corn starch, sugar, vanilla and sufficient water for preparation.

*Analysis* (submitted by manufacturer).—Total solids 29.3%, moisture 70.7%, ash 0.75%, fat 0.077%, protein (N × 6.25) 3.07%, crude fiber 0.031%, carbohydrate other than crude fiber (by difference) 25.37%.

| Vitamins and Minerals | Per 100 Gm. | |
|---|---|---|
| Carotene | 64 | I.U. |
| Thiamine | 0.028 | mg. |
| Riboflavin | 0.182 | mg. |
| Ascorbic acid | 1.20 | mg. |
| Nicotinic acid | 0.149 | mg. |
| Calcium | 114 | mg. |
| Phosphorus | 90 | mg. |
| Iron | 4.8 | mg. |

*Calories.*—1.14 per gram; 32.5 per ounce.

*Use.*—For use in the feeding of infants, young children, convalescents, and others requiring a soft diet.

**Swift and Company, Chicago.**

SWIFT'S DRIED EGG YOLKS FOR BABIES. Ingredients: Pasteurized, dried egg yolks.

*Analysis* (submitted by manufacturer).—Total solids 97.3%, moisture 2.7%, ash 3.5%, fat 59.9%, protein 33.1%, salt 0.1%, carbohydrate (by difference) 0.8%.

| Vitamins and Minerals | Per 100 Gm. | |
|---|---|---|
| Vitamin A | 5,800 | I.U. |
| Thiamine | 0.4 | mg. |
| Riboflavin | 0.7 | mg. |
| Nicotinic acid | 0.4 | mg. |
| Vitamin D | 670 | I.U. |
| Calcium | 230 | mg. |
| Phosphorus | 870 | mg. |
| Iron | 8.3 | mg. |

*Calories.*—6.8 per gram; 193 per ounce.

*Use.*—For use in the feeding of infants, young children, and in special diets.

*The following products, intended for use in low sodium and other therapeutic diets, have been accepted as conforming to the rules of the Council. Data regarding composition represent the best available information, which is based on submitted reports of analyses. The Council has requested continuing analytical studies, especially of the sodium content of products intended for use in low sodium diets, because of the natural variations in the composition of processed foods.*

JAMES R. WILSON, M.D., *Secretary.*

**S. S. Pierce Company, Boston.**

OVERLAND BRAND DIETETIC PACK CUT GREEN BEANS consists of Tendergreen variety beans, packed in water without any added salt.

*Analysis* (submitted by distributor).—Total solids 5.2%, moisture 94.8%, ash 0.23%, fat (ether extract) 0.11%, protein (N × 6.25) 0.88%, crude fiber 0.53%, carbohydrate 3.45%, and sodium 1.02 mg./100 gm.

*Calories.*—0.18 per gram; 5 per ounce.

*Use.*—For use in low calorie, low sodium, and other therapeutic diets.

OVERLAND BRAND DIETETIC PACK CUT WAX BEANS consists of Kinghorn variety wax beans, packed in water without any added salt.

*Analysis* (submitted by distributor).—Total solids 4.6%, moisture 95.4%, ash 0.24%, fat (ether extract) 0.09%, protein (N × 6.25) 0.82%, crude fiber 0.54%, carbohydrate 2.91%, and sodium 0.80 mg./100 gm.

*Calories.*—0.15 per gram; 4 per ounce.

*Use.*—For use in low calorie, low sodium, and other therapeutic diets.

OVERLAND BRAND DIETETIC PACK DICED BEETS consists of Detroit dark red beets, packed in water without any added salt.

*Analysis* (submitted by distributor).—Total solids 6.2%, moisture 93.8%, ash 0.44%, fat (ether extract) 0.05%, protein (N × 6.25) 0.76%, crude fiber 1.41%, carbohydrate 4.54%, and sodium 19.40 mg./100 gm.

*Calories.*—0.22 per gram; 6 per ounce.

*Use.*—For use in low calorie, low sodium, and other therapeutic diets.

OVERLAND BRAND DIETETIC PACK DICED CARROTS consists of Red Cored Chantenay carrots, packed in water without any added salt.

*Analysis* (submitted by distributor).—Total solids 6.56%, moisture 93.44%, ash 0.48%, fat (ether extract) 0.06%, protein (N × 6.25) 0.78%, crude fiber 0.60%, carbohydrate 4.64%, and sodium 50.1 mg./100 gm.

*Calories.*—0.22 per gram; 6 per ounce.

*Use.*—For use in low calorie, low sodium, and other therapeutic diets.

OVERLAND BRAND DIETETIC PACK WHOLE KERNEL CORN consists of Tendermost variety corn, packed in water without any added salt

*Analysis* (submitted by distributor).—Total solids 17.4%, moisture 82.6%, ash 0.38%, fat (ether extract) 0.51%, protein (N × 6.25) 2.04%, crude fiber 0.33%, carbohydrate 14.14%, and sodium 1.2 mg./100 gm.

*Calories.*— 0.69 per gram; 20 per ounce.

*Use.*—For use in low sodium and other therapeutic diets.

OVERLAND BRAND DIETETIC PACK SWEET PEAS consists of peas (surprise variety), packed in water without any added salt.

*Analysis* (submitted by distributor).—Total solids 11.7%, moisture 88.3%, ash 0.35%, fat (ether extract) 0.20%, protein (N × 6.25) 3.14%, crude fiber 1.34%, carbohydrate 6.67%, and sodium 8.58 mg./100 gm.

*Calories.*—0.41 per gram; 12 per ounce.

*Use.*—For use in low sodium and other therapeutic diets.

OVERLAND BRAND DIETETIC PACK SPINACH consists of Northland-Viking spinach, packed in water without any added salt.

*Analysis* (submitted by distributor).—Total solids 5.7%, moisture 94.3%, ash 1.14%, fat (ether extract) 0.31%, protein (N × 6.25) 1.83%, crude fiber 0.60%, carbohydrate 1.82%, and sodium 9.10 mg./100 gm.

*Calories.*—0.17 per gram; 5 per ounce.

*Use.*—For use in low calorie, low sodium, and other therapeutic diets.

THE JOURNAL
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## FOLIC ACID DEFICIENCY IN MACROCYTIC ANEMIA OF PREGNANCY AND INFANCY

More than seven years have elapsed since folic acid was synthesized.[1] It has been established as a therapeutic agent. It produces a hemopoietic response in persons with pernicious anemia while not arresting the progress of the neurological disturbances, and may be life-saving in the treatment of the macrocytic anemia of pregnancy or the megaloblastic anemia of infancy. In some instances there is no substitute for folic acid therapy.[2]

Folic acid is a water soluble vitamin and is a member of the B complex. It is a yellow crystalline substance having the chemical formula of $C_{19}H_{19}N_7O_6$, and chemically it is termed pteroylglutamic acid. It exists in natural sources in several chemical forms. It is more abundant in green leaves, liver, and yeast than in any other foods.

Angulo and Spies [3] have shown that the diets eaten by many patients with sprue and by women with macrocytic anemia of pregnancy are low in folic acid content. It has been recommended that the macrocytic anemia of pregnancy can be prevented by treating the mother during pregnancy with substances like folic acid or foods containing adequate amounts of folic acid.[4]

Elsewhere in this issue, Spies, Dreizen, Parker, and Silberman [5] bring forward a great deal of evidence conconcerning folic acid deficiency in human beings. By administering folic acid to a mother with the macrocytic anemia of pregnancy who was nursing an infant with the megaloblastic anemia of infancy, these investigators observed that the mother and infant responded dramatically. The redness of the buccal mucosa in both mother and nursing infant faded, and each had a characteristic reticulocyte peak in the peripheral blood on the seventh day of therapy. Both the mother and infant gained strength as the red blood cells and hemoglobin increased. This demonstrates clearly the physiological relationship between the failure of hemopoiesis in the mother and failure of hemopoiesis in the nursing infant due to a deficiency of folic acid. These investigators also describe cases of pregnant women in whom this type of anemia developed while they were taking vitamin preparations that did not contain folic acid.

These observations demonstrate why Castle,[6] Wills,[7] Spies,[8] and others, after finding that certain patients did not respond to the administration of the purified antipernicious anemia liver extract, formerly recommended the use of crude fractions of liver and yeast. We now know that most potent antianemia liver extracts are rich in vitamin $B_{12}$ but are almost devoid of folic acid.

The fact that liver extract, vitamin $B_{12}$, and folic acid each fail in the treatment of some types of macrocytic anemia was covered in an editorial in the Nov. 3, 1951, issue of THE JOURNAL. Nothing takes the place of diagnostic acumen and appreciation of the activity and specificity of the various vitamins. The fact that folic acid does not relieve acute neural degeneration is not a general indictment against it, for its value in some types of macrocytic anemia is beyond dispute. Likewise, the fact that vitamin $B_{12}$ does not always relieve the macrocytic anemia of pregnancy and the megaloblastic anemia of infancy is no indictment against it. Vitamin $B_{12}$, or substances that act similarly, are essential for the integrity of the nervous system. Folic acid is essential in some types of macrocytic anemia; hence, both vitamin $B_{12}$ and folic acid are essential for life.

## SURGERY IN PATIENTS WITH CORTISONE-INDUCED ADRENAL INSUFFICIENCY

The cortex of the adrenal gland may partially atrophy during long-term treatment with cortisone. Should this happen, the natural supply of cortical steroids may not be sufficient at a time of acute stress, such as during and after anesthesia and operation, when steroids are essential to prevent shock and circulatory collapse. Anesthesia and operation are well tolerated when such patients are prepared preoperatively by the administration of cortisone.

Perhaps the most satisfactory schedule for preparing patients who are known to have adrenocortical suppression consists in the intramuscular administration of 100 to 200 mg. of cortisone per day for two or three days before operation and on the day of operation. A similar schedule also may be used for two or three days postoperatively, with a gradual reduction of the dose until it reaches the previous optimal figure.

On the other hand, there are instances of emergency in which a patient requires anesthesia and immediate operation. In such cases no such schedule of treatment is possible; hence it is imperative to ask such a patient or someone who can speak for him whether he has been receiving cortisone or corticotropin (ACTH). If so, use of about 30 to 50 cc. of rapidly acting aqueous adrenocortical extract injected intravenously and repeated as needed, in addition to resumption of cortisone or corticotropin therapy, is imperative to maintain the unprepared patient safely during the period of stress so that he may be assured thereby of the support necessary for survival.

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[1] Angier, R. B., and others: Synthesis of a Compound Identical with the L. Casei Factor Isolated from Liver, Science **102**: 227, 1945.

[2] Spies, T. D., and others: Therapeutic Indications for Vitamins in Mixtures: Principles in the Treatment of Nutritive Failure, Postgrad. Med. **10**: 269, 1951.

[3] Angulo, J. J., and Spies, T. D.: The Determination of the Folic Acid Content of Foods Usually Consumed by Patients with Tropical Sprue, Am. J. Trop. Med. **27**: 317, 1947.

[4] Spies, T. D.: Observations on the Macrocytic Anemia Associated with Pregnancy, Surg., Gynec. & Obst. **89**: 76, 1949.

[5] Spies, T. D.; Dreizen, S.; Parker, G. S., and Silberman, D. J.: Recent Observations in the Detection and Treatment of Nutritive Failure in Children, read before the Section on Pediatrics at the One-Hundredth Annual Session of the American Medical Association, Atlantic City, N. J., June 14, 1951, J. A. M. A. **148**: 1376 (April 19) 1952.

This matter is sufficiently important to justify a warning to internists, surgeons, and anesthesiologists to be certain that cortisone, corticotropin, and aqueous adrenocortical extract is available for the immediate treatment of the patient undergoing anesthesia and operation whose stress response mechanism may be impaired due to prior treatment with cortisone or corticotropin. It is imperative that such a patient receive proper treatment preoperatively, during the operation, and postoperatively. If this is done, it is believed that lives will be saved.

## PROCAINE IN ATHLETIC INJURIES

The use of procaine hydrochloride and related anesthetic agents by injection locally to relax muscle spasm and improve circulation to the part by allowing motion free of pain has been advocated by Bettmann,[1] Grieve,[2] Murphy,[3] and others. Although some authors do not employ immobilization of any kind or advise rest in conjunction with the treatment of injury of the lower extremities, their reports generally lack long follow-up periods and careful evaluation of the late results of this method of treatment. Despite the fact that ordinary physical activity may be encouraged and cases of unusually heavy work being carried out are described, none directly advises active participation in athletic contests immediately after treatment. Quigley[4] states, "Novocaine has no place in the treatment of ligament sprains in athletes. Under its influence a minor sprain might easily become major."

In spite of the lack of good precedent to justify the practice, the use and abuse of local anesthetic agents to enable amateur and professional athletes to continue active sports participation in the face of serious injury is apparently becoming more widespread. Hardly a month passes that even the casual reader of the sports pages does not find a reference to the use of injection of "pain-killing drugs" in connection with some prominent athletic figure. Many will remember the case of the baseball catcher who finished the last two games of the World Series a few years ago limping on an ankle which was heavily taped and injected with procaine hydrochloride, only to discover when a roentgenogram was taken that a serious fracture had been missed and, therefore, neglected.

Last fall, just before the World Series, an article about another catcher appeared under an Associated Press dateline from which the following excerpt is taken: "Campanella returned after taking his licks. 'That novocaine didn't do no good yesterday,' he said. 'Don't think this stuff will do any good neither. It hurts too deep.' 'How about it? Do you want to play?' Dressen finally asked. Campanella shrugged. 'It's all right with me,' he said and hobbled away." Only the day before in an article by the same writer, the following quotation was given from the manager of another major league team: "Do you know Jansen has had a bad back for the last month? Has to have shots to kill the pain before he pitches, but when I tell him he is pitching, he just says, 'Where's the ball?' 'You can't beat spirit like that.' " One month later the repeated use of procaine for a prominent pitcher during the season of 1945 was revealed by his manager and confirmed by the physician who had given the injections. The latter was quoted also as saying that he had used procaine (novocaine®) "many times" on players of the Detroit Tigers baseball team, the Detroit Lions professional football team, and the University of Detroit football team. "There is no dope situation involved," he said. "The drug is merely used as an aid for healing." This aroused even a seasoned sports columnist to the following comment: "Does Dr. ———, the University of Detroit trainer, who recently defended his use of novocaine on pitcher Hal Newhouser's sore arm in 1945 to kill the pain, on the grounds that it is a healing aid and is used regularly in training rooms, know that medical books describe it as an anesthetic with less toxicity than cocaine, and, far from having healing properties, did in the case of Newhouser, cause him to aggravate his arm injury by pitching while the pain was numbed by the drug. Incidentally, if it is illegal to use drugs in a contest involving dogs or horses, why shouldn't the ban be extended to include athletes for their own protection?"

The use of adhesive tape and procaine to enable football, basketball, and hockey players, as well as track stars, to continue to participate during the competitive season is common knowledge. Its use is so general that there is reason to believe that trainers, physiotherapists, and other unauthorized persons are actually employing injections of local anesthetic drugs without proper medical supervision. The various pressures, financial or otherwise, that have made winning more important than playing have been aired thoroughly during the last year. They have been responsible for allowing many young men to risk serious, permanent injury for pay or prestige. Such indiscriminate use of procaine should not be tolerated by those interested in the welfare of athletes.

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6. Castle, W. B., and Minot, G. R.: Pathological Physiology and Clinical Description of the Anemias, London, Oxford University Press, 1936.

7. Wills, L., and Mehta, M. M.: Studies in "Pernicious Anemia" of Pregnancy: Preliminary Report, Indian J. M. Res. **17**: 777, 1930.

8. Spies, T. D., and Butt, H. R.: Vitamins and Avitaminosis, in Duncan, G. G.: Diseases of Metabolism, ed. 3, Philadelphia, W. B. Saunders Company, 1952, p. 401.

1. Bettmann, E. H.: Prolonged Therapeutic Action of Intracaine in Painful Musculoskeletal Disorders, New York State J. Med. **47**: 2193 (Oct. 15) 1947.

2. Grieve, J.: Procaine in the Treatment of Minor Injuries, Lancet **1**: 344 (March 15) 1941.

3. Murphy, F. C., and Postlethwait, R. W.: *Novocain Injection for* Minor Injuries in Military Service, Surg., Gynec. & Obst. **77**: 397 (Oct.) 1943.

4. Quigley, T. B.: The Management of Knee Injuries Incurred in College Football, Surg., Gynec. & Obst. **87**: 569 (Nov.) 1948.

# ORGANIZATION SECTION

## REPORT OF BOARD OF TRUSTEES

*The following report of the Board of Trustees will be presented to the House of Delegates of the American Medical Association at its meeting to be held in Chicago in June:*

### FINANCIAL STATEMENT

The official reports of the Treasurer and of the Association's auditors are appended as a part of this report.

In 1951 the $25.00 annual membership dues of the American Medical Association included a subscription to The Journal, and a Member Fellow had the privilege of substituting another scientific publication of the Association. In the prior year the payment of membership dues did not include a subscription.

The constituent state and territorial medical associations reported collections of membership dues in 1951 of $2,777,539. An estimate at the close of the year of additional collections of 1951 dues, amounting to $122,461, appears justified at the time of this writing, March 15, 1952. Realized and estimated collections together total $2,900,000, equivalent to 116,000 member payments. Fifteen dollars of each member payment is allocated to the income of the periodical chosen by the member, and after this allocation the income credited to 1951 membership dues amounted to $1,159,683. This amount is identified in the Statement of Income in the financial statements.

Additional collections of 1950 dues were reported in 1951 in the amount of $332,724. A total of $228,965 was paid in 1951 Fellowship dues, equivalent to 45,793 Fellowship payments. The payment of Fellowship dues was discontinued by the Board of Trustees with the year 1952, and income from this source will not be recurring.

Association investments produced income of $167,762, an approximate average return of 2½%. A portion of Association funds is invested in short-term government securities yielding low interest rates. A general classification of Association securities may be found in the Balance Sheet.

Miscellaneous receipts and other income amount to $68,670. The total of the foregoing items, $1,957,804, represents income in 1951 exclusive of income from the periodical publications.

Subscription income from The Journal, the monthly periodical publications, and *Today's Health*, amount to $3,094,797. Advertising income from the same sources amounts to $2,686,719. Subscription and advertising income together total $5,781,516. Printing and other costs incident to the publication of the periodicals were $3,613,254, making a net income of $2,168,262. Total income from all sources amounted to $4,126,066.

The expenses of the Councils, Bureaus, and related activities totaled $2,243,880. This compares with $1,838,382 in 1950. The increase represents in part higher operational costs, but it also reflects an expansion in functions and service. This is particularly so in the Department of Public Relations, which in 1951 expended $209,212 compared with $102,116 in 1950, and in the Council on Medical Education and Hospitals, which expended $212,018 in 1951 and $177,767 in 1950. The Bureau of Health Education, owing to higher radio costs, and some experimentation with television, spent $208,788 in 1951 compared with $150,578 in 1950, and the 1951 expenditures of the Bureau of Medical Economic Research amounted to $180,329 compared with $140,311 in 1950. The expenditure of each Council, Bureau, and related activity for the year 1951, together with a consolidated classification of the expenses, appears in the auditor's report.

Employee past service annuities and retirement pay of $135,126 and legal fees and sundry, $7,042, amount to $142,168.

Economies have been introduced in the printing of the Quarterly Cumulative Index Medicus by adoption of the offset printing method. The loss incurred in publishing and printing the Index amounted to $49,768 in 1951 and $71,878 in 1950, a reduction in loss of $22,110.

Other items of expense include a loss from the sale of pamphlets, reprints, and books, cash discounts allowed over those received from vendors, and depreciation on office equipment.

The Annual and Clinical Sessions together resulted in a loss of $79,738 in 1951. The net loss of the two se amounted to $71,297 in 1950.

During 1951, $529,515 was expended on the National E cation Campaign. This compares with an amount of $2,55 expended in 1950, which was paid from American Me Association dues collections of that year.

An amount of $500,000 was appropriated from 1951 i in support of the American Medical Education Foundatio a similar sum was appropriated from 1950 income.

At the close of 1951 there were 871 persons emplo the offices and in the printing plant of the Association compares with 841 persons the year before. Salaries an paid in 1951 amounted to $3,329,109, as compar $3,049,247 in 1950. A total of 4,580 tons of paper u in printing Association periodical publications in 19 cost of $751,800, as compared with 3,814 tons used at a cost of $602,216. The action of the House of in providing a subscription to The Journal for all du members accounts for the greater part of this increas consumption. Social Security taxes paid in 1951 am $49,900; in 1950, $43,485.

Capital expenditures made during 1951 in the he building property amounted to $19,483, and expen new printing equipment, office furniture, and labora ment amounted to $65,901.

The Board of Trustees approved a project in months of the year to mechanize the Membership, and Subscription Department records. The installa is now nearing completion, will expedite the opera Department and enhance its service to the members and to the constituent associations.

The Association, through the exercise of rights its current holdings of common stocks, added onl its investment in common stocks during the year. of 1951, marketable securities in the portfolio of ation at cost prices totaled $5,049,334, exclusive o in securities held in the American Medical Associati Fund; together $6,542,863. This compares with sec ing $6,240,252 at the end of 1950. Marketable sec amount of $5,049,334 represent investments of:

General Fund..........................................
Association Reserve Fund..............................
Building Reserve Fund.................................
Retirement Reserve Fund...............................
Equipment Modernization Fund..........................
Depreciation Reserve Fund.............................
AMEF Reserve Fund.....................................

## TREASURER'S REPORT

### Report of the Treasurer of the American Association for the Year Ended Dec. 31

| | | |
|---|---|---|
| Investments (at cost) as at Jan. 1, 1951.......................... | | $4,750,148. |
| Bonds purchased (at cost).......... | $3,669,857.73 | |
| *Common stocks purchased (at cost).* | 4,132.00 | 3,673,989. |
| | | $8,424,138. |
| Less: | | |
| Bonds called, matured, or sold..... | | 3,374,804. |
| Investments as at Dec. 31, 1951....... | | |
| Balance held for investment Jan. 1, 1951.......................... | $ 37,752.48 | |
| Interest and dividends received in 1951 | 174,709.74 | |
| | $ 212,462.22 | |
| Transferred to general fund......... | 176,826.71 | |
| Uninvested funds as at Dec. 31, 1951.. | | |
| Invested and uninvested funds as at Dec. 31, 1951.......................... | | |

### AMERICAN MEDICAL ASSOCIATION RESEARC

| | |
|---|---|
| Investments (at cost) as at Jan. 1, 1951.......... | $1,490,103. |
| *Bonds purchased (at cost)*........................ | 13,528. |
| | $1,503,631. |

| | | |
|---|---|---|
| Less: | | |
| Bonds sold | 10,103.13 | |
| Investments as at Dec. 31, 1951 | | $1,493,528.76 |
| Uninvested funds as at Jan. 1, 1951 | 3,996.87 | |
| Less: | | |
| Expended for purchase of securities | 3,450.80 | |
| Uninvested funds as at Dec. 31, 1951 | | 546.07 |
| Invested and uninvested funds as at Dec. 31, 1951 | | $1,494,074.83 |
| Interest received on investments and transferred to general fund to apply on research expenditures | $ 36,826.71 | |

## DAVIS MEMORIAL FUND

| | | |
|---|---|---|
| Balance in funds Jan. 1, 1951 | $ 8,412.08 | |
| Interest earned on bank balance in 1951 | 116.06 | |
| Funds on deposit at Dec. 31, 1951 | | $ 8,528.14 |

Josiah J. Moore, Treasurer.

## AUDITOR'S REPORT

*The Board of Trustees*
*American Medical Association*

March 31, 1952

We have examined the balance sheet of the American Medical Association as of Dec. 31, 1951, and the related statement of income for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying balance sheet and statement of income present fairly the financial position of American Medical Association at Dec. 31, 1951, and the results of its operations for the year then ended, in conformity with generally accepted accounting principles which, except for the change (of which we approve) in the method of recording dues income as set forth in the note to the statement of income, have been applied on a basis consistent with that of the preceding year.

Peat, Marwick, Mitchell & Co.

## STATEMENT OF INCOME

### For the Year Ended Dec. 31, 1951

| | | |
|---|---|---|
| Income: | | |
| Membership dues: | | |
| 1951 dues less $1,739,525 (amount of allocation to periodical subscription income based on $15.00 for each membership payment) | | $1,159,683 |
| 1950 dues | | 332,724 |
| | | 1,492,407 |
| Fellowship dues | | 228,965 |
| Income from investments | | 167,762 |
| Miscellaneous receipts and other income | | 68,670 |
| | | 1,957,804 |
| Publications (periodicals): | | |
| Subscriptions, including $1,739,525 allocated from 1951 membership dues | $3,094,797 | |
| Advertising | 2,686,719 | |
| | 5,781,516 | |
| Less printing and other costs (Schedule 1) | 3,613,254 | 2,168,262 |
| | | 4,126,066 |
| Expenses: | | |
| Councils, bureaus, and related activities (Schedule 2) | 2,243,880 | |
| Employees' past service annuities and retirements | 135,126 | |
| Accumulated expenses and provision for completion costs of publishing Quarterly Cumulative Index in excess of accumulated income therefrom | 49,768 | |
| Costs and other expenses of printing and procuring books, pamphlets, and reprints in excess of income therefrom | 71,162 | |
| Annual and interim sessions—net | 79,738 | |
| Cash discounts—net | 37,701 | |
| Depreciation and taxes unallocated | 28,330 | |
| Legal and sundry | 7,012 | |
| | 2,652,747 | |
| Expenditures for National Education Program | 529,515 | |
| Appropriated for The American Medical Education Foundation | 500,000 | 3,682,262 |
| Income in excess of expenses | | $ 443,804 |

Note—During the year 1951, the Association received 1950 membership dues amounting to $332,724. These dues were recorded as income when received. The Association has recorded 1951 membership dues on an accrual basis and the accounts include $122,461 of 1951 membership dues receivable at Dec. 31, 1951.

## AMERICAN MEDICAL ASSOCIATION—Balance Sheet—Dec. 31, 1951

### Assets

| | | | |
|---|---|---|---|
| Cash | | | $ 89,715 |
| Accounts receivable: | | | |
| Advertising | | $ 253,978 | |
| Membership dues | | 122,461 | |
| Directory report service—19th edition | | 38,316 | |
| Other | | 81,533 | 496,318 |
| Interest accrued on investments | | | 31,539 |
| Inventories of materials, supplies, work in progress, and publications, at cost | | | 801,433 |
| Expenditures on publication in progress | | | 94,143 |
| Prepaid expenses, deposits, and advances: | | | |
| Advances to cover commitments of the National Education Program | | 72,400 | |
| Other deposits and advances | | 41,756 | |
| Insurance and other prepaid expenses | | 29,118 | 143,274 |
| Marketable securities at cost (value based on market quotations, $4,950,067): | | | |
| United States government securities | | 2,818,321 | |
| Railroad, municipal, public utility and industrial bonds | | 1,802,809 | |
| Common stocks | | 428,204 | 5,049,334 |
| Representing investments of: | | | |
| The American Medical Education Foundation Fund | $ 500,000 | | |
| General fund | 919,334 | | |
| Depreciation reserve fund | 1,455,000 | | |
| Association reserve fund | 350,000 | | |
| Retirement reserve fund | 675,000 | | |
| Building reserve fund | 450,000 | | |
| Equipment modernization reserve fund | 700,000 | | |
| American Medical Association Research Fund: | | | |
| United States government securities at cost (value based on market quotations, $1,433,234) | | 1,493,529 | |
| Cash | | 546 | 1,494,075 |
| Property, plant, and equipment, at cost: | | | |
| Land | | 328,774 | |
| Building | 2,126,592 | | |
| Machinery and printing equipment | 691,082 | | |
| Office and laboratory equipment | 442,082 | | |
| | 3,259,756 | | |
| Less reserve for depreciation | 1,453,216 | 1,806,540 | 2,135,314 |
| | | | $9,835,145 |

### Liabilities

| | | |
|---|---|---|
| Accounts payable and accrued expenses: | | |
| State Journal Advertising Bureau | | $ 46,726 |
| Other accounts payable | | 158,575 |
| Accrued payroll | | 52,500 |
| Accrued taxes | | 68,061 |
| | | 325,862 |
| Provision for payment to The American Medical Education Foundation | | 500,000 |
| Provision for completion costs of publications to be issued | | 183,700 |
| Deferred credits: | | |
| Unexpired subscriptions to publications | $ 380,254 | |
| Income from 19th edition directory report service less accumulated costs applicable to directory | 48,825 | |
| Other | 15,602 | 444,681 |
| American Medical Association Research Fund reserve | | 1,494,100 |
| Other reserves: | | |
| Association | 350,000 | |
| Retirement | 675,000 | |
| Building | 450,000 | |
| Equipment modernization | 700,000 | 2,175,000 |
| Capital account: | | |
| Balance at Dec. 31, 1950 | 4,267,998 | |
| Excess of income over expenses for year ended December 31, 1951 | 443,804 | 4,711,802 |

### PUBLICATIONS (PERIODICALS) PRINTING AND OTHER COSTS

For the Year Ended Dec. 31, 1951

| | |
|---|---|
| Salaries and wages | $1,306,463 |
| Paper and ink | 888,129 |
| Illustrations | 101,567 |
| Contract printing | 149,051 |
| Postage and cartage | 205,375 |
| Editorial (excluding wages) | 134,250 |
| Advertising sales and services (excluding wages) | 96,467 |
| Circulation (excluding wages) | 306,705 |
| Other costs—including allocation of building and plant maintenance, depreciation, taxes, and employee welfare tax | 425,247 |
| | $3,613,254 |

### EXPENSES OF COUNCILS, BUREAUS, AND RELATED ACTIVITIES

For the Year Ended Dec. 31, 1951

| | |
|---|---|
| Salaries and wages | $1,027,187 |
| Department printing | 107,989 |
| Office supplies and equipment maintenance | 50,810 |
| Postage, express, and freight | 58,830 |
| Telephone and | 23,886 |
| Memberships, b | 25,942 |
| Legislative services | 4,206 |
| Statistical equipment rental | 20,005 |
| Membership records and reimbursement to state societies for dues collections | 64,293 |
| Biographical records | 80,576 |
| Staff and officers' travel | 105,258 |
| Inspection of hospi | 18,518 |
| General administra quarters maintenance, employee insurance, and taxes | 207,173 |
| Educational exhibits, motion pictures, and literature | 94,100 |
| Radio and television | 89,543 |
| Trustee meetings | 14,463 |
| Committee conferences | 195,794 |
| Grants, tests, and surveys | 16,238 |
| Miscellaneous | 39,069 |
| | $2,243,880 |

Note—The above expenses are allocated to the following councils, bureaus, and related activities:

| | |
|---|---|
| Association | $ 143,234 |
| Secretary's Office | 83,538 |
| Department of Public Relations | 209,212 |
| Washington Office of A. M. A. | 180,483 |
| Biographical Records | 80,576 |
| Membership Records | 64,293 |
| A. M. A. Laboratory | 68,943 |
| Microbiologic Laboratory | 11,957 |
| Council on Medical Education and Hospitals | 212,018 |
| Council on Medical Service | 100,338 |
| Council on Pharmacy and Chemistry | 113,290 |
| Council on Physical Medicine and Rehabilitation | 56,946 |
| Council on Foods and Nutrition | 41,336 |
| Council on Industrial Health | 67,887 |
| Council on National Emergency Medical Service | 39,851 |
| Council on Rural Health | 31,546 |
| A. M. A. Library | 54,840 |
| Bureau of Exhibits | 65,320 |
| Bureau of Health Education | 208,788 |
| Bureau of Investigation | 21,214 |
| Bureau of Legal Medicine and Legislation | 51,484 |
| Bureau of Medical Economic Research | 180,329 |
| Committee on Cosmetics | 15,301 |
| Committee on Research | 39,556 |
| Commission on Chronic Illness | 10,000 |
| Survey of Medical Education | 61,054 |
| The American Medical Education Foundation | 14,641 |
| Student American Medical Association | 12,905 |
| | $2,243,880 |

## THE GOVERNMENT AS THE INSURED OF A PRIVATE INSURER

At the Clinical Session of the American Medical Association in December, 1951, a special committee, under the chairmanship of Dr. Elmer L. Henderson, was appointed by the Board of Trustees to study and report with respect to the following aspects of federal medical services:

(*a*) medical and hospital benefits for veterans with non-service-connected disabilities; (*b*) medical and hospital benefits for dependents of service personnel, and (c) the transfer of seriously disabled service personnel from service hospitals to Veterans Administration installations.

It is intended that a very thorough and exhaustive study be made of the laws and their legislative history as well as administrative regulations and procedures dealing with these subjects. It is also planned to compile pertinent information reflecting costs, trends, and future plans in these three areas. The results of the study will be used as the basis for policy recommendations to the Board of Trustees and the House of Delegates of the Association.

In considering the possibility of furnishing medical care for certain federal beneficiaries by means of prepaid health insurance, it has been suggested that the premiums under such a program be paid by the federal government. It is believed that the following memorandum, addressed to Dr. George F. Lull from Frank G. Dickinson, Ph.D., Director of the Bureau of Medical Economic Research, which discusses this possibility, will be of interest.

The activities of Dr. Henderson's Committee and the contents of Dr. Dickinson's memorandum have been discussed briefly in the Secretary's Letter (a letter from George F. Lull, Secretary, to state and county medical associations). As indicated therein by Dr. Lull, any suggestions or comments in regard to either subject should be addressed to Mr. C. Joseph Stetler, Secretary of the Committee on Legislation, who has been assigned the staff responsibilities in connection with this work.

To: George F. Lull, M.D.
From: Frank G. Dickinson, Ph.D.
Subject: Should the Federal Government Be Insured by a Private Insurer?

1. Incident to the actions of the House of Delegates at Los Angeles, Dec. 3-6, 1951, (*J. A. M. A.*, Dec. 22, 1951, Novy, pages 1697-1698, McKeown, page 1698, Appel, pages 1700-1701, Wall, page 1701, Hamilton, page 1701, and Robbins, page 1701), you have asked me to prepare a statement on the general question stated above. You suggested that I omit discussion of the purchase of insurance by local and state governments because the question relates to the federal government only. The extent of the insurance operations of federal and state governments as insurers, not as insureds, has been outlined in a booklet, "Government Insurance in the United States," by Frank Lang.

2. The federal government has never, to my knowledge, purchased insurance from a private company or firm. A review of insurance history might possibly uncover a few isolated and unimportant instances. During the December, 1951, meeting of the American Association of University Teachers of Insurance, of which I was president for two years, I asked the following authorities for references to instances: (1) Prof. Ralph H. Blanchard, Columbia University, (2) Prof. Harry J. Loman, University of Pennsylvania, (3) Prof. John H. Magee, formerly University of Maine, and (4) Prof. David McCahan, University of Pennsylvania. (Blanchard is editor of the McGraw-Hill Insurance Series, Loman is dean of the American Institute for Property and Liability Underwriters, Magee is the author of several widely used insurance books, and McCahan is executive vice-president of the College of Life Underwriters.)

3. Each of these four authorities has told me that, to the best of his knowledge, the federal government has never purchased insurance from a private insurance company. It has and does often require insurance of persons and firms that sell goods or services to it, or persons who apply for loans. The federal government has probably never been an insured of a private insurer.

4. Should the federal government by the payment of premiums become insured by a private insurance company? An examination of the fundamental principles of insurance will indicate clearly that the answer must be no. First consider a large business firm and its need for insurance. Suppose that the ABC Distributing Company owned 10,000 store buildings of approximately the same size scattered throughout the length and breadth of the United States. Suppose further that evidence had been accumulated that indicated that one-twentieth of one per cent of these buildings would, on the average, be completely destroyed by fire during any one calendar year and that one-third of one per cent would be damaged by fire. Should this company purchase fire insurance on all of these buildings? It would be quite unnecessary. This company might—indeed, some companies do—employ an insurance organization to investigate the claims, the causes of the fire, particularly the physical and human causes, and take care of any legal matters incident thereto. For this service the insurance company is paid a fee of, say, 10%, but the operation is a service and not an insurance operation. The insurance company in performing this service for the ABC Distributing Company would not have guaranteed the loss ratio, would not have guaranteed, as *it does its insureds*, that for the premium paid the entire losses covered by the contract would be paid no matter how great or how small the losses might be during the

policy period, usually one to three years. So much for insurance principles in relation to a large business firm.

5. Now consider the application of insurance principles to the sovereign power. There is no sound reason in insurance history or in the nature of insurance for the federal government to become an insured of a private insurance company. In the illustration in 4 above I refer to a very uncommon service; property insurance companies do occasionally contract to render this type of service to self-insured business firms with sufficient spread of risk to warrant self insurance. (The propriety of the federal government paying the gross premiums—net loss plus overhead, including some financial return on the risk capital—is beyond the scope of these remarks.) The federal government from the standpoint of insurance is 155 million persons, the broadest possible base for the distribution of risk. It is larger than thousands of ABC Distributing Companies. Indeed, it is larger than all insurance companies combined, because it is the sovereign power. The federal government is all of us. Subject only to the discretion of Congress and of the President and the requirements of uniformity imposed by the Constitution as interpreted by the courts, the federal government has a 100% lien on your future income and mine. The federal government is truly the sovereign power. Its borrowing power is not limited by the federal Constitution. The federal government does not and should not buy fire insurance, marine insurance, automobile insurance, bridge insurance, or workman's compensation insurance from private carriers, and, in the case in point, the federal government should not buy accident and health insurance from Blue Cross and Blue Shield Plans or insurance underwriters. The very notion of the federal government as the sovereign power eliminates it from any rational consideration of being made an insured of an insurance company. The only responsible federal official who has recently suggested that the federal government become an insured of a private company is Oscar Ewing, according to the Washington News of THE JOURNAL (147:14 [Dec. 29] 1951); "Federal Security Agency officials who are attempting to work out a program for hospitalization of the aged still are undecided whether to use voluntary insurance plans, with the federal government paying the premium . . . Mr. Ewing has expressed an interest in extending coverage through voluntary insurance plans and has conferred with officials of some of the insurance organizations." If Mr. Ewing should have this legislation introduced and it should be enacted into law, it would be, to my knowledge, the first instance of its kind. Perhaps when and if Mr. Ewing comes to understand why no agency of the federal government should be insured by a private agency, he will drop the matter.

6. In the resolutions cited in 1 above and in other discussions, I have gained the impression that the distinction between prepayment and postpayment in relation to insurance principles is not clear. There are many instances of premiums being adjusted at the end of some experience period. With certain exceptions there is a guarantee as to the maximum amount of the additional premium that will be determined at the end of the policy period. In some of our mutual companies, for example, the additional premium or assessment cannot exceed the amount of the original premium paid in advance. Insurance premiums are usually paid in their entirety at the beginning of the premium period. Insurance is usually, therefore, a prepayment and not a postpayment proposition.

7. It has been suggested that Blue Cross and Blue Shield plans and private insurance companies might enter into contracts with the federal government to service the claims of veterans with non-service-connected disabilities and the dependents of servicemen. Presumably, the "insurers" would investigate the claims, pay the physician, the dentist, the hospital, the druggist, etc., report these amounts monthly or quarterly to the proper official in Washington, and, after the disbursements were audited, the insurer would be reimbursed and paid some fee for his services, say 10%. This kind of postpayment for expenditures made on behalf of the client bears no resemblance to insurance and lies completely outside the scope of insurance as that subject has developed over the past three to five centuries. Indeed, the federal agency could select some other kind of company or association to do this same work at the local level. Presumably, the Blue Cross and Blue Shield plans and the private insurance companies would be selected solely because they could render the best service or because they could afford to perform this investigating and paying function at the lowest possible cost, but it could be done by banks, personal finance companies, or other business institutions.

8. Finally, would a private insurance company ever want to have the federal government as one of its insureds? Certainly the private firm could expect to have the (federal agency) insured dictate the terms of the contract, the premium rates, and the claim adjustments. When the Social Security Act of 1935 was before Congress there was a considerable amount of comment in the press and in Washington about the desirability of the federal government reinsuring the social insurance risks with private insurance companies. The companies themselves said: "No, thank you. We do not want the kind of business that would enable the federal government to dictate the terms of the annuities for persons covered by social security, because that would ultimately mean complete dictation of the contracts for all of our policyholders." The extent of this hazard for a private insurance company, Blue Cross plan, or Blue Shield plan, would depend in some measure on whether the amount of premium derived from a group contract insuring an agency of the federal government comprised a small or a large percentage of the total premium income of the private insurer. It seems likely that very few experienced insurance executives would care to take on the federal government as one of their company's insureds.

9. *Summary.*—(*a*) There is nothing in the history, theory, and principles of insurance to warrant the federal government becoming an insured of a private insurance company. It would make the sovereign power of government subservient to a private business institution. It would be contrary to public policy. (*b*) The Congress and the President would unquestionably reject any proposal that both violates the fundamental rules of insurance and seeks to invert the inherent relationship between the sovereign power and a private citizen, association, or firm. (*c*) Finally, the private insurer would certainly face the inevitable danger of absorption and control by its insured—an agency of the federal government.

## FEDERAL MEDICAL LEGISLATION

### Nurse Cadets for Military Forces

Representative Cole of New York introduced H. R. 7160, which would provide for the training of candidates for appointment as nurses in the military services. This bill would establish an officer candidate training program for nurses to meet military requirements. Appointments would be made to the regular armed services or to their reserve components. Candidates would be trained at institutions prescribed by secretaries of the Army, Navy, and Air Force. During the course of training all expenses would be paid for the trainee, including tuition, student uniforms, fees, books, school health programs, and laboratory expenses. A subsistence allowance of $50 per month would be paid trainees. Candidates would be required to agree to serve for one year of active duty for each year of subsidized training. At the option of the military services, candidates could be released or required to begin obligated service any time during the training period. On satisfactory completion of training, candidates would be eligible for appointments as ensigns or second lieutenants in the regular or reserve components of the military services.

### Transfer of Indian Hospitals

H. R. 7232 was introduced by Representative Patten of Arizona. This bill proposes to transfer the administration of health services for Indians and the operation of Indian hospitals to the Public Health Service. It is identical with S. 2780 and H. R. 6908, previously reported.

### Medical Benefits to Veterans' Dependents

A bill to grant free outpatient medical and dental treatment to certain children of deceased veterans was introduced by Representative O'Neill of Pennsylvania. This bill, H. R. 7320, would authorize the Administrator of the Veterans Administration to

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The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

furnish "necessary free out-patient medical and dental treatment to the child or children" of veterans who die or who have died in active military service as a result of disability incurred in or aggravated by such service in the line of duty. The Administrator would provide such treatment in the same manner and to the same extent as treatment furnished to veterans for service-connected disease or injury. The term "child" includes children up to age 18 and under certain circumstances to age 21.

### Veterans Presumption of Service Connection for Nonpulmonary Tuberculosis

Representative Rankin of Mississippi introduced H. R. 7347, which would amend the veterans' regulations to establish for certain persons who served in the armed forces a further presumption of service connection for nonpulmonary forms of active tuberculosis. This bill is similar to a previously reported bill, H. R. 7022, and would amend Veterans' Administration regulations to establish for persons who served in the armed forces during wartime a three-year presumption of service connection for nonpulmonary tuberculosis. The present regulations establish a one year presumption of service connection for nonpulmonary tuberculosis for World War II veterans. This bill was introduced at the request of the American Legion.

## STATE MEDICAL LEGISLATION

### Arizona

**Bill Enacted.**—S. 4, has become Ch. 57 of the Laws of 1952. It provides certain amendments to the law relating to narcotic drugs including, among other things, a definition of the word "physician" to mean a person licensed to practice medicine, or osteopathy, or otherwise licensed to treat sick and injured human beings, and to use narcotic drugs in connection with such treatment.

### California

**Bills Introduced.**—S. R. 34, proposes the creation of an interim commission to ascertain, study and analyze all facts relating to all state hospitals and veterans' institutions whatever their nature.

### Kentucky

**Bills Enacted.**—H. R. 46, became Law without approval, March 26, 1952. It directs the legislative research commission in cooperation with the University of Kentucky to make a careful and impartial study of the desirability and steps necessary for the establishment of a state supported medical school of the University of Kentucky. H. 172, became Law without approval, March 24, 1952. It authorizes the Department of Health to establish and maintain services and facilities, including hospital schools, for the care and education for physically handicapped persons and to provide in connection therewith medical and nursing care. H. 279, was approved March 18, 1952. It repeals and reenacts the law relating to the licensure of chiropodists and defines chiropody to mean the diagnosis, and the local, medical, mechanical, and surgical treatment, of ailments of the human foot, and massage in connection therewith, except amputation of the foot or toes, or the use of anesthetics other than local, or the use of drugs or medicines other than local. S. 100, was approved March 20, 1952. It creates an alcohol study commission to make a comprehensive study on the problem of alcoholism, the existing methods and facilities in the state for treatment, the present program for public education on alcoholism, and the present status of the laws of the state in regard to alcoholism. S. 166, was approved March 25, 1952. It provides, among other things, that no person shall be denied admission to any hospital or clinic operated by any city-county board of health on account of his financial condition nor shall the administration of emergency treatment to such person be delayed on account thereof. S. 238, was approved March 24, 1952. It amends the workmen's compensation act by providing that employees and employers shall furnish to the opposite party copies of any medical examinations made of the employee either by a physician chosen by the employer or by the employee's own physician.

### Maryland

**Bills Enacted.**—S. 5, has become Ch. 17 of the Laws of 1952. It includes isonipecaine, amidone, and dromoran within the definition of "narcotic drugs," together with certain synthetic drugs having common habit-forming qualities and effects of habituation. S. 19, has become Ch. 19 of the Laws of 1952. It amends the law relating to rabies by making it the duty of any person having a knowledge of the fact that a person has been bitten by a dog having or suspected of having rabies to report the fact to the county health officer who shall see that such dog is confined for such period of time as the health officer may direct.

### Massachusetts

**Bill Introduced.**—H. 2234, proposes to authorize the committee on labor and industries to make an investigation and study relative to medical services under the workmen's compensation act; controlling the disclosure of information contained in the employee's medical records; furnishing of copies of medical records, reports of hospitals, clinics, and physicians; and other subjects.

### Michigan

**Bill Introduced.**—S. C. R. 43, proposes a commission of an interim commission to study the mental health program in the state.

### Mississippi

**Bills Introduced.**—H. 951 and H. 979 propose an appropriation to defray the expenses of the state board of health and to be used, among other purposes, for the inspecting of private hospitals in the state which receive money from the state for charity patients with a view to approving or disapproving such hospitals for the reception and treatment of charity patients. H. 955, proposes an appropriation for defraying the expenses of treating children affected with cerebral palsy. H. 972, proposes an appropriation to the board of trustees of state institutions of higher learning for the purpose of providing necessary equipment, teaching staff and other personnel and for general expenses of a school of nursing at the University of Mississippi. H. 981, proposes an appropriation to the board of trustees of state institutions of higher learning for the purpose of paying for scholarships for advanced studies in nursing.

**Bill Enacted.**—H 531, was approved March 27, 1952. It provides an appropriation to the state medical education board for the purpose of carrying out the provisions of the law creating the board and for the purpose of providing scholarships for bona fide citizens and residents of the state to secure for them medical education which would qualify them to become licensed and practicing physicians and surgeons in the state.

### New Jersey

**Bills Introduced.**—A. 611, proposes to amend the licensing law applicable to private nursing homes and private hospitals so as to cover convalescent homes as well. S. 139, proposes the creation of a board of chiropractic examiners and defines chiropractice as a system of adjusting the articulations of the spinal column, by hand only, for the correction of a cause of disease. Licentiates under this act would have a right, in the examination of patients, to use all scientific instruments and x-ray necessary for the purpose of analysis, providing however that a license to practice chiropractic would not permit the holder to prescribe, administer, or dispense drugs in the treatment of any human ailment, disease, pain, injury, deformity, mental or physical condition, or to perform surgical operations or to perform obstetrics or to reduce or set fractures or dislocations.

**Bill Enacted.**—A. 1, has become Ch. 3 of the Laws of 1952. It provides an appropriation for the construction of, among other things, state mental and charitable hospitals.

### New York

**Bills Enacted.**—S. 3, has become Ch. 354 of the Laws of 1952. It directs the mental health commission to formulate a program for the development and maintenance of one or more clinics operated within the state operated by public or private nonprofit community agencies for the diagnosis, treatment, and rehabilitation of chronic alcoholics. S. 2216, has become Ch. 413 of the Laws of 1952. It requires all schools under state control or supported wholly or in part by public money to teach the nature of alcoholic drinks and their effects on the human system in connection with the various divisions of physiology and hygiene.

### Rhode Island

**Bill Introduced.**—H. 785, to amend the employment security act, proposes the appointment of a state advisory council to aid the administrator of employment security in formulating policies and solving problems relating to the administration of the employment security act and assuring him impartiality, neutrality, and freedom from partisan influence in the solution of such problems. One member of such council shall be a representative of the medical profession.

### South Carolina

**Bill Enacted.**—H. 1775, has become Ratification No. 905 of the Acts of 1952. It provides regulations for the detention, guardianship, and treatment of mentally ill and mentally deficient persons.

### Virginia

**Bills Enacted.**—H. 132, has become Ch. 451 of the Laws of 1952. It amends the uniform narcotic act by defining "opium" as including all synthetic drugs including addiction forming or addiction sustaining properties similar to morphine and so proclaimed by the President of the United States under the provisions of the Federal Narcotic Law. It also provides special penalities where the offense charge consists of the sale of marijuana or narcotics to a minor. H. 148, has become Ch. 452 of the Laws of 1952. It requires every practicing medical doctor in the state to obtain a revenue license, except those who were regularly practicing medicine prior to 1909 and interns in a licensed hospital during the 12 months next following their graduation from medical school.

# MEDICAL NEWS

## CALIFORNIA

**Popular Medical Lectures.**—Stanford University School of Medicine, San Francisco, is giving a series of Popular Medical Lectures at Lane Hall on Wednesday evenings. Remaining lectures are as follows:

April 23, The Age of Medical Miracles, Anthony J. J. Rourke.
May 7, Natural Childbirth—What It Is and What It Isn't, Lyman M. Stowe.

**Traveling State Mental Hygiene Clinic.**—A traveling state mental hygiene clinic opened in Chico in January as one of three being established in Northern California by the State Department of Mental Hygiene. It is reported to be the first traveling clinic in the state and makes psychiatric service available north of Sacramento. Other clinics are to be located in Marysville and Redding, with central offices in Chico. The staff includes a psychiatric social worker, a clinical psychologist, and consulting psychiatrist, who will serve the three clinics. Dr. Joseph H. Harris, consulting psychiatrist, is director of the state mental hygiene clinic in Sacramento and acting director of the traveling clinic.

## COLORADO

**Clinic at Grand Junction.**—The Western Colorado Spring Clinic was held at Grand Junction April 18-19 at the LaCourt Hotel. Guest speakers included Drs. Maxwell M. Wintrobe and Thomas F. Keyes, Salt Lake City; Drs. William H. Mast and Robert O. Turek, Cleveland; Dr. Lawrence K. Gundrum, Los Angeles, and Dr. John Z. Bowers, dean of the University of Utah School of Medicine, Salt Lake City.

**Seminar on Poliomyelitis.**—The University of Colorado School of Medicine offers a seminar in poliomyelitis, to be held May 1-3. In addition to individual presentations, there will be panel discussions on "Etiology and Management of Pain and Spasm," "Other Diseases Simulating Polio—e. g., Coxsackie Infections, Encephalitides, Neuromuscular Disorders," and "When an Epidemic Strikes Your Community—Pueblo in 1951." Demonstrations in patient care on May 3 will include nursing, the bulbar-respiratory case, and physical therapy. The registration fee of $5 and tuition fee of $15 will be omitted for residents and interns of Colorado General and other affiliated hospitals and members of the faculty of the University of Colorado School of Medicine. Applications, accompanied by registration fee, should be sent to the Director of Postgraduate Education, University of Colorado School of Medicine, 4200 E. Ninth Ave., Denver 7.

## CONNECTICUT

**Record for Maternal Safety.**—The State Department of Health reports that there were 42,355 live births in 1951 in Connecticut and only six maternal deaths. The resulting rate of 0.1 per 1,000 live births is claimed to be the lowest recorded to date. Of the children born in 1951 in Connecticut, 98.3% were born in the 32 general hospitals that provide maternity care.

## DISTRICT OF COLUMBIA

**Psittacosis Reported.**—Dr. J. C. Eckhardt of the district department of health has reported a suspect case of psittacosis in an adult male. The patient became ill on March 16 with headache, cough, and signs of bronchopneumonia that responded to terramycin. There was a history of exposure to a sick parakeet. The bird, obtained in nearby Maryland on Feb. 14, died March 25. Psittacosis virus was isolated from tissues of the bird at the National Institutes of Health.

## FLORIDA

**Annual Pediatric Seminar.**—The annual seminar of the Dade County Pediatric Society will be held in Jackson Memorial Hospital, Miami, April 23-25. Dr. Aims C. McGuinness, dean, Graduate School of Medicine, University of Pennsylvania, will give a paper on "The Common Digestive Tract Disturbances of Infants and Children Including Steatorrhoeas: Diagnosis and Management." Dr. Jerome S. Harris, professor of pediatrics, Duke University, Durham, N. C., will discuss "ACTH and Cortisone—Latest Concepts with Review of the Indications, Contraindications and Dangers Inherent in Their Use." Registration fee for nonmembers is $10.

## MASSACHUSETTS

**Symposium on Cardiovascular Surgery.**—The Alumni Association of the Boston University School of Medicine will hold its annual meeting May 3. Speakers, all of Boston, will include:

Joseph P. Lynch, Boston University, Management of Cardiac Trauma.
John W. Strieder, Boston University, Constrictive Pericarditis.
Dwight E. Harken, Harvard Medical School, Surgery of the Mitral Valve.
Robert E. Gross, Harvard Medical School, Treatment of Coarctation of the Aorta.

The speaker at the banquet will be Mr. Erwin D. Canham, whose subject will be "The Chances for Peace."

## MISSOURI

**Meeting in Columbia.**—The consulting staff of the Ellis Fischel State Cancer Hospital in Columbia will meet on April 27 at 11 a. m. The scientific program is as follows:

Lauren V. Ackerman, St. Louis, End Results of Treatment in Cancer of the Breast.
Richard E. Johnson, Columbia, Design of a Clinical Experiment.
Henry Schwarz II, Columbia, Factors Influencing Results of Surgical Treatment of Peptic Ulcer.

The meeting is open to all members of the medical profession.

**Meeting of Psychiatric Association.**—The Mid-Continent Psychiatric Association will meet at the Hotel President, Kansas City, April 26-27. The president, Dr. Andrew B. Jones, St. Louis, will speak on "The Degenerative Diseases, with Emphasis on Amyotrophic Lateral Sclerosis." Other speakers include the following:

Charles E. Thompson, Ph.D., and W. Payton Kolb, North Little Rock, Ark., Group Psychotherapy in Association with Alcoholics Anonymous Program.
Robert F. Freeman, Topeka, Kan., Problem of Senile Custodial Patients—Solution for Kansas.
Leo H. Bartemeier, Detroit, Psychotherapy of Psychosomatic Disorders.
Daniel Blain, Washington, D. C., Use of the Handicapped in Defense Mobilization.
Charles F. Obermann, Oklahoma City, Control of Tuberculosis in State Hospitals of Oklahoma.
G. Wilse Robinson, G. Wilse Robinson Jr., Paul Hines, Louise B. Loewy, and Jack D. DeMott, Kansas City, Toxic Delirious Psychosis and the Mold Antibiotics.
William G. Reese, Little Rock, Ark., Clinical Application of Conditional Reflex Methodology.
Dexter M. Bullard, Rockville, Md., Clinical Problems in Administrative Psychiatry.
Francis J. Braceland, Hartford, Conn., Psychosomatic Medicine in English Literature.
John A. Grimshaw, Topeka, Kan., Occurrence of Methemoglobinemia During Insulin Coma.

## MONTANA

**Postgraduate Course.**—The Maternal and Child Welfare Committee of the Montana Medical Association in cooperation with the state board of health will present a postgraduate course during the week of April 21 on the care of premature infants. Guest speakers will be Dr. John A. Lichty, associate professor of pediatrics, and Dr. Paul Bruns, associate professor of obstetrics, both of the University of Colorado School of Medicine, Denver, and Miss Greene, nursing supervisor of the premature unit at Colorado General Hospital. Classes will be conducted in Bozeman, April 21, Lewistown, April 22, Great Falls, April 23, Havre, April 24, Glasgow, April 25, and Miles City, April 26.

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

## NEW JERSEY

**Doctors' Chorus.**—The third annual benefit concert by the Doctors' Chorus of the Essex County Medical Society in behalf of the Essex County Service for the Chronically Ill will be given in the auditorium of the Mutual Benefit Life Insurance Company, Newark, on April 30 at 8:30 p. m.

## NEW YORK

**Postgraduate Courses.**—Postgraduate instruction, provided at the request of the Saratoga County Chapter, Academy of General Practice, in conjunction with the Saratoga County Medical Society, is being given by the Medical Society of the State of New York in cooperation with the New York State Department of Health on Thursdays at the Hotel Rip Van Dam, Saratoga Springs. The remaining presentations are as follows:

April 24, 8:30 p. m., Leo Taran, Roslyn, L. I., Management of Rheumatic Fever.
May 1, 4:30 p. m., Frederick W. Williams, New York, Gangrene and the Management of the Surgical Diabetic.
May 22, 4:30 p. m., Irwin Wellen, New York, Hypertension, Edema, and Proteinuria in Pregnancy.

**Woman's Auxiliaries Aid Nurses.**—The Woman's Auxiliary to the Medical Society of the State of New York reports that during the past six years more than $32,000 has been raised to train 129 women in 24 counties in nursing education. This year five more counties will join the scholarship program started in 1946. Twenty-five nurses have graduated, and four students are scheduled to complete their courses this year as a result of the scholarships. Primary requirements for the scholarships are financial need, ability, and county residency. Several county auxiliaries have engaged in other activities beneficial to the nursing profession. One county established a $600 assistance fund to enable nurses to continue their education. Another awarded prizes to outstanding nursing students at hospital capping ceremonies, while others enlisted nursing recruits. Three other auxiliaries augmented their scholarship contributions with emergency funds.

### New York City

**Annual Kaplan Lecture.**—The annual meeting of the Bellevue Hospital Radiation Therapy Alumni Association will be held May 8 at 1 p. m. in the eighth floor lecture hall of the administration building at Bellevue Hospital. The program will feature the annual Ira I. Kaplan Lecture, which will be given by Dr. James A. Corscaden, on "Treatment of Carcinoma of the Uterus." Members of the medical profession are invited.

**Society News.**—Dr. Henry L. Jaffe of the Hospital for Joint Diseases will present a paper on "Giant-Cell Tumor, Traumatic Bone Cyst, and Fibro-Osseous Lesions of Jaws" at the monthly conference of the New York Institute of Clinical Oral Pathology April 28 at the New York Academy of Medicine, room 440, at 9 p. m.

**Montefiore Hospital Lectures.**—The division of neoplastic diseases at Montefiore Hospital for Chronic Diseases is giving semimonthly lectures, with alternate meetings devoted to presentation of cases with discussion. On May 2, Dr. Joe V. Meigs, Boston, will speak on "Surgical Treatment of Cancer of the Cervix." On June 6, Dr. Arthur Purdy Stout will discuss "Tumors of Soft Tissue Origin."

**Hospital Alumni Meeting.**—The annual dinner and show of the Alumni Society of the Jewish Hospital of Brooklyn will be held May 4 beginning at 3 p. m. in Louria Auditorium. Subjects of papers to be presented are: "Demonstration—New Method for Determining Early Cardiac Enlargement," "Studies on Prematurity," "Histamine in Allergy," "Clinical Applications of the Ballistocardiograph," and "Practical Considerations in Electrolyte Therapy for the Surgical Patient."

**Personals.**—Dr. George T. Pack recently lectured before the faculty and medical student body of the University of Santo Domingo. He was awarded the Order of Merit of Juan Pablo Duarte by President Rafael Trujillo of the Dominican Republic, and was made an honorary member of the Dominican Medical Society.——Dr. Jacob J. Golub recently retired as medical director and executive vice-president of the Hospital for Joint Diseases after an affiliation of 23 years.

**Courses in Resuscitation.**—The Society for the Prevention of Asphyxial Death, Inc. is conducting a course in resuscitation in the Academy of Sciences Building, May 4-5 and June 6-7. The course is given regularly in New York the first Friday and Saturday of each month; out-of-town classes have met in Boston, Columbus, Washington, D. C., Los Angeles, and Honolulu. Requests for out-of-town courses will be considered if application is made by a group of at least 12 students. For information, address Secretary, Society for the Prevention of Asphyxial Death, Inc., 2 E. 63rd St., New York 21.

## NORTH CAROLINA

**Appointments to Wake Forest.**—Three faculty members of the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, have been promoted to full professors: Dr. Fred K. Garvey, urology; Dr. James A. Harrill, otolaryngology, and Dr. Robert L. McMillan, clinical internal medicine. Dr. Paul Haun, presently chief of the hospital construction unit of the psychiatry and neurology division of the Veterans Administration, has been appointed assistant professor of psychiatry and clinical director of Graylyn, Bowman Gray School of Medicine, a nervous and mental hospital.

## OHIO

**New Mental Hygiene Chief.**—Dr. Calvin L. Baker, commissioner of mental hygiene since 1949, has resigned to resume private practice in Columbus and Dr. Lowell O. Dillon, assistant commissioner of mental hygiene, will succeed him.

**Appoint Professor of Pediatrics.**—Dr. William M. Wallace, assistant professor of pediatrics at Harvard Medical School, Boston, has been named director of Babies and Childrens Hospital, Cleveland, to succeed Dr. Charles F. McKahnn, now medical director of United Cerebral Palsy Associations. Dr. Wallace will also become professor of pediatrics at Western Reserve University School of Medicine.

**Symposium on Cortisone and Compound F.**—A symposium on cortisone and compound F, their local tissue actions, and possible mechanisms will be presented May 1 by the University of Cincinnati College of Medicine. There is no fee for the conference. Out-of-state speakers include:

Max Tishler, Ph.D., Rahway, N. J., Gregory G. Pincus, Sc.D., Shrewsbury, Mass., Chemistry of Cortisone and Compound F.
Ellis H. Steffensen, Detroit, Clinical Investigative Studies of the Local Use of Cortisone and Compound F in Diseases of the Eye.
Gregory G. Pincus, Shrewsbury, Mass., Joseph Lee Hollander, Philadelphia, Local Use of Cortisone and Compound F in Joints.
Charles West, New York, Studies of the Comparative Metabolic Effects of Cortisone and Compound F.
H. Dalton Jenkins, Boston, Comparative Clinical Studies of Cortisone and Compound F.
Augustus Gibson, Rahway, N. J., Summary of *Preliminary Findings* with Compound F and Need for Future Studies.

## PENNSYLVANIA

**Tuberculosis Society Meeting.**—The annual meeting of the Pennsylvania Tuberculosis and Health Society will be held April 28-30 at the Bellevue-Stratford Hotel, Philadelphia. The program will emphasize the problem of controlling tuberculosis and improving public health services in Pennsylvania. The Pennsylvania Trudeau Society will meet at the same time, its scientific sessions being held Tuesday, April 29. "What the Future Holds for Public Health in Pennsylvania" will be discussed by Dr. Russell E. Teague, Philadelphia, state secretary of health, at the forenoon session, April 30.

### Philadelphia

**Open House at Health Center.**—At its open house April 23 the Fife-Hamill Memorial Health Center will present exhibits and demonstrations on its many activities, including child health, dental hygiene, public health nursing, venereal disease control, health education, nutrition service, and mass x-ray screening. Dr. Bernard M. Blum, professor of public health at Jefferson Medical College of Philadelphia, is director of the center. A health maintenance clinic is headed by Dr. Gulden Mackmull, assistant professor of preventive medicine at Jefferson.

**Philadelphia Fellowship Award.**—Dr. Pascal F. Lucchesi, who recently resigned as superintendent and medical director of the Philadelphia General Hospital to become executive vice-president of the new Einstein Medical Center, received the 1952 Philadelphia Fellowship Award on Feb. 6 at the annual dinner of the commissioners for "his efforts to achieve democratic training, personnel and admission practices at Philadelphia General Hospital." The award is made annually for outstanding contributions to better understanding and equality of treatment and opportunity for all racial, religious, and national groups.

**Cancer Day Program.**—The Academy of General Practice and the Cancer Control Committee of the Philadelphia County Medical Society will hold a joint Cancer Day program on April 23. Moving pictures from 3 to 4 p. m. will be followed by a panel on diagnostic methods useful in cancer. The participants are as follows:

Walter H. Maloney, Laryngeal Mirror.
Theodore P. Eberhard, Office Biopsy.
Mary D. Pettit, Vaginal Speculum.
Ralph Jones Jr., Laboratory Tests.
Harry E. Bacon, *Sigmoidoscope.*

Dr. J. Herbert Nagler, president of the Philadelphia Academy of General Practice, will serve as moderator. The discussion will be followed by a dinner at 6 p. m.

## RHODE ISLAND

**Isaac Ray Medical Library.**—On March 5 this library was dedicated at Butler Hospital in Providence. The project, conceived by Dr. Gregory Zilboorg of New York, consultant in research and psychotherapy at Butler Hospital, received generous support from the Aquinas Fund. The new quarters were designed and built entirely by hospital personnel. Books on medical psychology from the libraries of the late Drs. Isaac Ray and G. Alder Blumer and other former superintendents will, it is anticipated, be part of a 10,000 volume library. So that the library will be equipped to meet more than local needs, a catalog of holdings of other psychiatric libraries in this country will be compiled.

## SOUTH CAROLINA

**College Resumes Original Name.**—The Medical College of the State of South Carolina, Charleston, after 120 years has resumed by legislative action its original name, the Medical College of South Carolina.

## TEXAS

**Grant for Research.**—The U. S. Public Health Service has awarded a grant of $13,296 to Dr. Andres Goth, professor of pharmacology, at Southwestern Medical School of the University of Texas, Houston, for a two year tissue metabolic study in experimental hypersensitivity.

**State Medical Meeting in Dallas.**—The annual session of the Texas Medical Association will be held in Dallas May 4-7, with headquarters at the Adolphus Hotel under the presidency of Dr. Allen T. Stewart of Lubbock. Guest speaker at the opening general meeting will be Dr. Robert P. Glover, Philadelphia, whose subject will be "Advances in Treatment of Stenotic Valvular Disease of the Heart." At the general meeting luncheon on Wednesday Mr. Arthur L. Conrad, Chicago, will speak on "The Key to Peace." Related organizations will meet Monday morning. There will be three clinical luncheons to accommodate nine specialty groups, and these will be followed by section meetings. Both alumni and fraternity banquets have been scheduled, and scientific and technical exhibits will be shown.

**Preprofessional Health Education Conference.**—A southwest regional Conference on Pre-Professional Health Education will be held May 15-17 at the University of Texas Medical Branch, Galveston, under the auspices of the Texas Academy of Medicine, the National Honorary Pre-Medical Society, and the Medical Branch. Professional schools, colleges, and universities in Arkansas, Louisiana, Oklahoma, and Texas will discuss opportunities for training in medicine, dentistry, pharmacy, veterinary medicine, public health, nursing, medical and radiation technology, physical and occupational therapy, hospital administration, medical case work, clinical psychology, and medical record librarianship. Representatives from national organizations in the health fields will participate.

## VIRGINIA

**War Memorial Fund Students.**—The Richmond County Medical Society announces that three children of physicians who gave their lives in World War II were enrolled in college this fall under its War Memorial Fund. The latest additions to the nine students previously enrolled are Franklin D. R. Wald, son of Dr. Oscar Wald, Kings County; Judith Silberstein, daughter of Dr. Harry A. Silberstein, Rockland County, and Edith Evelyn Lyons, daughter of Dr. Alfred L. Lyons, Queens County.

## WASHINGTON

**Society Meeting.**—The annual meeting of the Spokane Surgical Society will be held at the Davenport Hotel April 26. The guest speaker will be Dr. John H. Gibbon Jr., professor of surgery and director of surgical research, Jefferson Medical College, Philadelphia.

## WEST VIRGINIA

**Close VD Clinic in South Charleston.**—After treating over 20,000 persons for venereal diseases since 1944, the West Virginia Medical Center in South Charleston was closed permanently on April 15, the last patient having been admitted March 31. State health officials feel that because of the great decrease in venereal diseases, the cost of operating the center does not justify its continuance. When the clinic was opened in 1944, the average daily patient load was between 150 and 200 persons as compared to the present patient load of from 20 to 30 persons. The work of the center will be taken over by 10 treatment centers over the state. Eight of the clinics will be located in southern West Virginia and two in the northern part of the state.

**Public Health Association Meeting.**—The 28th conference of the West Virginia Public Health Association will be held at the Daniel Boone Hotel in Charleston May 8-9 under the presidency of Dr. David C. Prickett, Weston. Out-of-state speakers include:

Carl E. Buck, Dr.PH, Ann Arbor, Mich., Needed Public Health Legislation in West Virginia.
Seward E. Miller, Washington, D. C., Public Health Laboratory Services in the United States.
Vergil N. Slee, Hastings, Mich., The People, The Doctor, and the Health Department.
Miss Elizabeth Lovell, Raleigh, N. C., Mental Health as Related to Health Education in the Community.
Mrs. Phillip E. Nelbach, New York, Community Health Councils.
Miss Pearl McIver, Washington, D. C., Nursing in an Expanding Public Health Program.

## WISCONSIN

**Lovenhart Lecture.**—Under the auspices of Phi Delta Epsilon, Dr. Roy R. Grinker, director of the Institute for Psychosomatic and Psychiatric Research and Training, Michael Reese Hospital, Chicago, will speak at the University of Wisconsin in the auditorium of the Service Memorial Institute at 8 p. m. April 29 on "Irritability, Tension, and Anxiety."

## ALASKA

**Dr. Blomquist Heads Research Center.**—Dr. Edward T. Blomquist has arrived in Anchorage to take up his duties as medical officer in charge of the Arctic Health Research Center of the U. S. Public Health Service. He succeeds Dr. Jack C. Haldeman, who was transferred to Washington as chief of the Division of State Grants, Bureau of States Services, U. S. Public Health Service.

**Health Ships Begin Programs.**—The *Motor Vessel Health* left Seward Feb. 22 to offer its generalized health program in isolated villages along the Aleutian chain and the Bering Sea. The health ship expects to be in St. Lawrence Island ports by June, and then cross to Norton Sound, working its way back southward with calls at the coastline villages. Dr. Hazel I. Blair is the *Health's* physician in charge for the fourth year, and Miss Jeanne Schaver is again aboard as public health nurse.

The *Motor Ship Hygiene,* after a trip to dry dock for repairs, resumed operation in southeastern waters in February, with Klawock, Craig, Haines, and Hoonah first on its itinerary. It was scheduled to stop briefly in Juneau in mid-March. Dr. Lawrence R. Rose is physician in charge of the ship's generalized health program. Dr. Guy Yates is dentist, Mrs. Yates is dental assistant, and Irene Barnett is public health nurse.

## GENERAL

**Society Election.**—At the annual meeting of the Central Surgical Association in Toronto, March 6-8, Dr. Richard K. Gilchrist of Chicago was elected president; Dr. James T. Priestley of Rochester, Minn., president-elect; Dr. Robert M. Zollinger of Columbus, Ohio, secretary, and Dr. Leon J. Leahy of Buffalo, treasurer.

**Dr. Ralph S. Lillie Dies.**—Ralph S. Lillie, Ph.D., professor emeritus of pharmacy and zoology at the University of Chicago, died in Albert Merritt Billings Hospital March 19, aged 76. Before joining the faculty in 1924, he had served at Nebraska, Harvard, John Hopkins, and Pennsylvania universities. Dr. Lillie was internationally known for his work on the fundamental properties of living substances and the physiology of stimulation, growth, cell division, and radiation effects. He was an investigator and trustee of the Marine Biological Laboratory at Woods Hole, Mass.

**Award for Research in Orthopedic Surgery.**—A prize of $1,000, donated by the Kappa Delta Sorority, will be awarded annually by the American Academy of Orthopaedic Surgeons for the best research related to orthopedic surgery and performed by an American citizen in the United States. This research must be presented to the committee on scientific investigation of the academy before Nov. 1. Researchers interested in competing for this prize are requested to secure information from Dr. Claude N. Lambert, 104 S. Michigan Ave., Chicago 3, Chairman of the Award Committee for 1952.

**Seminar on Venereal Disease.**—Physicians, nurses, social workers, and other interested persons are invited to attend a seminar on venereal diseases, May 21-22 at the Hotel Bradford, Boston. The seminar, which is sponsored by the Public Health Service in conjunction with state health departments of the New England and Middle Atlantic States, will devote one day to clinical discussion and one to public health techniques of controlling venereal disease. Dr. Nicholas J. Fiumara, director of the division of venereal disease, Massachusetts Department of Public Health, is helping to make local arrangements.

**[illegible] on Athletics by Dr. Jokl.**—Dr. Ernst Jokl, formerly chief research officer in physical education in the Union Education Department, Fredonia, South Africa, and now physician in chief, Sporthochschule, Cologne, is in the United States lecturing before medical schools and schools of physical education. Among other institutions, Dr. Jokl has delivered addresses at Columbia University, New York University, University of Illinois, University of Chicago, University of Wisconsin, and the University of Southern California. On April 5 he addressed the annual sessions of the American Academy of Physical Education in Los Angeles. Dr. Jokl's presentation covers the subject of the clinical physiology of athletics, a paper for which he has been awarded the Buckston-Browne Empire Prize of the Harvein Society of London.

**Fellowships in Child Psychiatry.**—Fellowships offering training in child psychiatry are available in a number of member clinics of the American Association of Psychiatric Clinics for Children. The training begins at a third year, postgraduate level with minimum prerequisites of graduation from medical school, a general or rotating internship, and a two year residency in psychiatry, all approved. This training is in preparation especially for positions in community clinics devoted wholly or in part to treatment of children with psychiatric problems on an outpatient basis. Most of the clinics have a two year training period, although a few will consider giving one year training in special cases. Fellowship stipends are about $3,600 and come mainly from the U. S. Public Health Service. Special arrangements may be made to supplement the stipends by taking on other responsibilities locally. A limited number of training centers can offer higher stipends. For application forms address Miss Mary C. Bentley, Executive Assistant, American Association of Psychiatric Clinics for Children, 1790 Broadway, Room 916, New York 19.

**Muscular Dystrophy Association Meeting.**—On May 17-18 Muscular Dystrophy Associations of America, Inc., will hold its annual medical conference at the Park Sheraton Hotel, New York City. Among those who will participate are Dr. Pearce Bailey, head of the National Institute of Neurological Diseases and Blindness; Dr. Albert Szent-Gyorgyi, director, Institute for Muscle Research; Roger J. Williams, Ph.D., University of Texas; Dr. Ade T. Milhorat, New York Hospital-Cornell Medical Center; Dr. Sidney Farber, Children's Hospital, Boston; Dr. H. Houston Merritt, Neurological Institute of Presbyterian Hospital; Dr. Joseph L. Lilienthal Jr., Johns Hopkins Hospital; Dr. Leona Baumgartner, New York City Department of Health; Karl E. Mason, Ph.D., University of Rochester; Dr. Augustus S. Rose, University of California; Dr. Thaddeus S. Danowski, University of Pittsburgh School of Medicine; Dr. S. M. Small, University of Buffalo; Dr. Arthur S. Abramson, Veterans Administration Hospital, New York; Wilfried F. H. M. Mommaerts, Ph.D., Duke University; Harry M. Hines, Ph.D., State University of Iowa College of Medicine, and Edwin L. Hove, Ph.D., Alabama Polytechnic Institute. Requests for information should be addressed to the Chairman, Medical Conference, Muscular Dystrophy Associations of America, 21 E. 40th St., New York 16.

## FOREIGN

**Meeting of Nobel Laureates.**—The second meeting of Nobel laureates (prize winners in chemistry and physics) will be held June 23-27 at Lindau-Bodensee in Bavaria, Germany. Among the proposed subjects to be discussed are further development of chemotherapy of tuberculosis, curative success of chemistry and its restrictions in medicine, agents of growth and their antagonists, radiochemistry and the decomposition of uranium, and application of radioactive indicators for investigation of any process in animal bodies.

**International Congress on Dietetics.**—This congress is to be held in Amsterdam, The Netherlands, July 7-11 in the Royal Tropical Institute. All persons interested in nutrition and dietetics may become members of the congress on payment of fl. 30 ($30) to the general secretary, Miss Diane J. Ten Haaf at the Educational Bureau of the Nutrition Council, 42 Koninginnegracht, The Hague, The Netherlands. Languages of the congress will be English and French. During the morning sessions members will deliver lectures, and all afternoon sessions will be devoted to the subject "The Dietetic Profession and Its Problems."

**Meeting of International College of Surgeons.**—The first meeting of the French chapter of the International College of Surgeons will be held in Bordeaux, France, May 13-15. Prof. Dr. Raymond Darget, president of the French chapter, and Prof. Dr. Georges Portmann, dean of the Faculty of Medicine, Bordeaux, will officiate. Operative clinics will be held in Bordeaux hospitals and clinics, and papers will be presented on "Arterial Hypertension—Its Diagnosis and Treatment," "Surgical Injury of the Ureter," and "Laminectomy and Vertebral Grafts." Information concerning the meeting may be obtained from Prof. Dr. Raymond Darget, 17, rue Castéja, Bordeaux, France.

## CORRECTION

**Plastic Surgery of the Nose.**—The retail price of Brown and McDowell's book on this subject was incorrectly stated in THE JOURNAL, March 1 and March 15, as being $10. The retail price of the book is $15.

**Gastrointestinal Tract in the Aged.**—In the article by this title in THE JOURNAL, March 29, 1952, in the 11th line on page 1079, the dosage in parentheses "(20 to 30 gm.)" should read "(200 to 300 mg.)."

# MEETINGS

**American Medical Association, Chicago, June 9-13. Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.**

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American Academy of Pediatrics, Areal Meeting, Hotel Statler, Washington, D. C., May 22-24. Dr. E. H. Christopherson, 636 Church St., Evanston, Ill., Executive Secretary.

American Academy of Neurology, Brown Hotel, Louisville, Ky., Apr. 24-25. Dr. Francis M. Forster, 3800 Reservoir Rd. N.W., Washington, D. C., Secretary.

American Association for Thoracic Surgery, Dallas, Texas, May 8-10. Dr. Paul C. Samson, 2938 McClure St., Oakland 9, Calif., Secretary.

American Association of the History of Medicine, Kansas City, Kans., May 1-3. Dr. Iago Galdston, 2 East 103d St., New York 29, Secretary.

American Association on Mental Deficiency, Philadelphia, May 20-24. Dr. Neil A. Dayton, P. O. Box 96, Willimantic, Conn., Secretary.

American Blood Irradiation Society, Conrad Hilton Hotel, Chicago, June 7-8. Dr. H. T. Lewis, 5230 Center Ave., Pittsburgh, Secretary.

American Broncho-Esophagological Association, Royal York Hotel, Toronto, Canada, May 20-21. Dr. Edwin N. Broyles, 1100 North Charles St., Baltimore 1, Secretary.

American College of Chest Physicians, Congress Hotel, Chicago, June 5-8. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago, Executive Secretary.

American College Health Association, Copley Plaza Hotel, Boston, May 1-3. Miss Edith M. Lindsay, School of Public Health, University of California, Berkeley 4, Calif., Secretary.

American College of Physicians, Cleveland, April 21-25. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Executive Secretary.

American College of Surgeons, Sectional Meetings:

Toronto, Canada, Royal York Hotel, May 15-17. Dr. Stuart D. Gordon, 170 St. George St., Toronto 5, Canada, Chairman.

American Dermatological Association, Broadmoor Hotel, Colorado Springs, Colo., Apr. 23-26. Dr. Louis A. Brunsting, 102 Second Ave. S.W., Rochester, Minn., Secretary.

American Electroencephalographic Society, Hotel Claridge, Atlantic City, N. J., May 10-11. Dr. John A. Abbott, Massachusetts General Hospital, Boston 14, Secretary.

American Federation for Clinical Research, Haddon Hall, Atlantic City, N. J., May 4. Dr. Stewart Wolf, 525 East 68th St., New York 21, Secretary.

American Gastro-Enterological Association, Hotel Claridge, Atlantic City, N. J., May 2-3. Dr. Dwight L. Wilbur, 655 Sutter St., San Francisco 2, Secretary.

American Gastroscopic Society, Hotel Claridge, Atlantic City, N. J., May 2-3. Dr. H. Marvin Pollard, University Hospital, Ann Arbor, Mich., Secretary.

American Geriatrics Society, Hotel LaSalle, Chicago, June 5-7. Dr. Malford W. Thewlis, 25 Mechanic St., Wakefield, R. I., Secretary.

American Goiter Association, Chase Hotel, St. Louis, May 1-3. Dr. George C. Shivers, 100 East St. Vrain St., Colorado Springs, Colo., Secretary.

American Gynecological Society, The Homestead, Hot Springs, Va., May 12-14. Dr. John I. Brewer, 104 South Michigan Ave., Chicago, Secretary.

American Heart Association, Hotel Statler, Cleveland, April 17-20. Dr. Willian H. Bunn, 1775 Broadway, New York 19, Secretary.

American Laryngological Association, Royal York Hotel, Toronto, Canada, May 23-24. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia 2, Secretary.

American Laryngological, Rhinological and Otological Society, Royal York Hotel, Toronto, Canada, May 20-22. Dr. C. Stewart Nash, 277 Alexander St., Rochester 7, N. Y., Secretary.

American Medical Women's Association, Chicago, June 8. Dr. Irma Henderson-Smathers, 610 Medical Bldg., Asheville, N. C., Corresponding Secretary.

American Neurological Association, Hotel Claridge, Atlantic City, N. J., May 8-10. Dr. H. Houston Merritt, 710 West 168th St., New York 32, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 5-7. Dr. Maynard C. Wheeler, 30 West 59th St., New York 19, Secretary.

American Otological Society, Royal York Hotel, Toronto, Canada, May 18-19. Dr. John R. Lindsay, 950 East 59th St., Chicago 37, Secretary.

American Pediatric Society, Hotel Chamberlin, Old Point Comfort, Va., May 7-9. Dr. Aims C. McGuiness, 237 Medical Laboratories, Univ. of Pennsylvania, Philadelphia 4, Secretary.

American Proctologic Society, Milwaukee, June 4-7. Dr. Stuart T. Ross, 131 Fulton Ave., Hempstead, L. I., N. Y., Secretary.

American Psychiatric Association, Atlantic City, N. J., May 12-16. Dr. R. Finley Gayle Jr., 6300 Three Chopt Rd., Richmond 21, Va., Secretary.

American Psychoanalytic Association, Chalfonte-Haddon Hall, Atlantic City, N. J., May 8-11. Dr. LeRoy M. A. Maeder, 1910 Rittenhouse Square, Philadelphia 3, Secretary.

American Radium Society, Chicago, June 8. Dr. John Wirth, 635 Herkimer St., Pasadena 1, Calif., Secretary.

American Rheumatism Association, Conrad Hilton Hotel, Chicago, June 6-7. Dr. William H. Kammerer, 33 East 61st St., New York 21, Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 5. Dr. William M. M. Kirby, Univ. of Washington School of Medicine, Seattle 5, Secretary.

American Therapeutic Society, Blackstone Hotel, Chicago, June 5-8. Dr. Oscar B. Hunter Jr., 915 Nineteenth St. N.W., Washington 6, D. C., Secretary.

American Trudeau Society, Hotel Statler, Boston, May 26. Dr. John D. Steele, 1790 Broadway, New York 19, Secretary.

American Venereal Disease Association, Washington, D. C., May 1-2. Dr. William L. Fleming, 750 Harrison Ave., Boston 18, Secretary.

Arizona Medical Association, Hotel Westward Ho, Phoenix, April 30-May 3. Dr. Frank J. Milloy, 15 E. Monroe St., Phoenix, Secretary.

Arkansas Medical Society, Little Rock, April 21-23. Dr. William R. Brooksher, 215 Kelley Bldg., Fort Smith, Secretary.

Association of American Physicians, Atlantic City, N. J., May 6-7. Dr. Henry M. Thomas Jr., 1201 North Calvert St., Baltimore 2, Secretary.

California Medical Association, Biltmore Hotel, Los Angeles, April 27-30. Dr. Albert C. Daniels, 450 Sutter St., San Francisco 8, Secretary.

Catholic Hospital Association of the United States and Canada, Cleveland, May 26-29. Rev. John J. Flanagan, S.J., 1438 South Grand Blvd., St. Louis 4, Director.

Connecticut State Medical Society, Hartford, April 29-May 1. Dr. Creighton Barker, 160 St. Ronan Street, New Haven, Secretary.

Florida Medical Association, Hollywood, April 27-30. Dr. Samuel M. Day, P. O. Box 1018, Jacksonville, Secretary.

Georgia, Medical Association of, Atlanta-Biltmore Hotel, Atlanta, May 12-14. Dr. David H. Poer, 875 West Peachtree St. N.E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Honolulu, May 1-4. Dr. I. L. Tilden, 510 S. Beretania St., Honolulu 13, Secretary.

Illinois State Medical Society, Chicago, May 13-15. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary.

Industrial Medical Association, Cincinnati, April 21-24. Dr. Edward C. Holmblad, 28 E. Jackson Blvd., Chicago 4, Managing Director.

Iowa State Medical Society, Des Moines, April 28-30. Dr. Allan B. Phillips, 406 Sixth Avenue, Des Moines 9, Secretary.

Kansas Medical Society, Town House, Kansas City, April 27-May 1. Dr. Dale D. Vermillion, 512 New England Bldg., Topeka, Secretary.

Louisiana State Medical Society, Shreveport, April 28-30. Dr. C. Grenes Cole, 1430 Tulane Ave., New Orleans 12, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 28-30. Dr. George H. Yeager, 1211 Cathedral St., Baltimore 1, Secretary.

Massachusetts Medical Society, Hotel Statler, Boston, May 20-22. Dr. H. Quimby Gallupe, 22 Fenway, Boston 15, Secretary.

Mid-Continent Psychiatric Association, President Hotel, Kansas City, Mo., April 26-27. Dr. Paul Hines, 2625 W. Paseo, Kansas City, Mo., Secretary.

Minnesota State Medical Association, Minneapolis, May 26-28. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Mississippi State Medical Association, Jackson, May 13-15. Mr. Roland B. Kennedy, 508 First Federal Bldg., Jackson, Executive Secretary.

National Tuberculosis Association, Copley Plaza and Statler Hotels, Boston, May 26-30. Mr. Kemp D. Battle, 1790 Broadway, New York 19, Secretary.

Nebraska State Medical Association, Cornhusker Hotel, Lincoln, May 12-15. Dr. R. B. Adams, 1315 Sharp Bldg., Lincoln 8, Secretary.

New Jersey, Medical Society of, Haddon Hall, Atlantic City, May 19-21. Dr. Marcus H. Greifinger, 315 West State St., Trenton 8, Secretary.

New Mexico Medical Society, Carlsbad, May 8-10. Dr. L. G. Rice Jr., 221 West Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Hotel Statler, New York, May 12-16. Dr. Walter P. Anderton, 292 Madison Ave., New York 17, Secretary.

North Carolina, Medical Society of the State of, Hotel Carolina, Pinehurst, May 5-7. Dr. Millard D. Hill, 203 Capitol Club Bldg., Raleigh, Secretary.

Ogden Surgical Society, Orpheum Theater, Ogden, Utah, May 21-23. Dr. George M. Fister, Ogden, Utah, President.

Ohio State Medical Association, Cleveland, May 20-22. Mr. Charles S. Nelson, 79 East State St., Columbus 15, Executive Secretary.

Oklahoma State Medical Association, Oklahoma City, May 19-21. Mr. R. H. Graham, 1227 Classen St., Oklahoma City, Executive Secretary.

Rhode Island Medical Society, Providence, May 6-8. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.

Society for Investigative Dermatology, Hotel Sherman, Chicago, June 7-8. Dr. Herman Beerman, 255 South 17th St., Philadelphia 3, Secretary.

Society for Pediatric Research, Old Point Comfort, Va., May 5-6. Dr. Sydney S. Gellis, 300 Longwood Ave., Boston 15, Secretary.

Society of American Bacteriologists, Hotel Statler, Boston, April 27-May 1. Dr. Henry W. Scherp, 260 Crittenden Blvd., Rochester 20, N. Y., Secretary.

Society of Biological Psychiatry, Hotel Claridge, Atlantic City, N. J., May 11. Dr. George N. Thompson, 1136 West Sixth St., Los Angeles 17, Secretary.

South Carolina Medical Association, Ocean Forest Hotel, Myrtle Beach, *May 13-15.* Dr. N. B. Heyward, 120 West Cheves St., Florence, Secretary.

South Dakota State Medical Association, Sioux Falls, May 18-20. Dr. L. J. Pankow, 302 First National Bank Bldg., *Sioux Falls, Secretary.*

Southern Oregon Medical Society, Roseburg, May 13. Dr. F. C. Adams, 1435 Esplanade St., Klamath Falls, Secretary.

Texas Medical Association, Dallas, May 4-7. Dr. Sam N. Key Sr., 700 Guadalupe St., Austin 3, Secretary.

The Endocrine Society, Palmer House, Chicago, June 5-7. Dr. Henry H. Turner, 1200 North Walker St., Oklahoma City 3, Secretary.

Western Association of Industrial Physicians and Surgeons, Biltmore *Hotel, Los Angeles,* April 26. Dr. David D. Holaday, American Can Company, Third and 20th Sts., San Francisco 7, *Secretary.*

Wyoming State Medical Society, Nobel Hotel, Lander, June 5-7. Dr. Glenn W. Koford, 2020 Carey Ave., Cheyenne, Secretary.

## INTERNATIONAL

Australasian Medical Congress, Melbourne Victoria, Australia, Aug. 22-30. Dr. C. H. Dickson, Medical Society Hall, 426 Albert St., East Melbourne, Victoria, Australia, General Secretary.

Commonwealth and Empire Health and Tuberculosis Conference, Central Hall, London, England, July 8-13. *Dr. J. H.* Harley Williams, Tavistock House North, Tavistock Sq., London, W.C.1, England, Secretary General.

Congress of the International Diabetes Federation, Leyden, Netherlands, July 7-12. Dr. F. Gerritzen, 33, Prinsegracht, The Hague, Netherlands, Secretary.

European Congress of Cardiology, University of London, Bloomsbury, W.C.1, England, Sept. 10-12. Dr. K. Shirley Smith, 35 Wimpole St., London, W.1, England, Secretary.

European Society of Cardiovascular Surgery, Strasbourg, France, Oct. 3-4. Sir James Learmonth, Department of Surgery, University New Buildings, Edinburgh 8, *Scotland.*

Interamerican Cardiological Congress, Buenos Aires, Argentina, Aug. 31-Sept. 7. Dr. Blas Moia, Larrea 1132, Buenos Aires, Argentina, Secretary-General.

Inter-American Congress of Public Health, Havana, Cuba, Sept. 27-Oct. 1. Pan-American Sanitary Bureau, 2001 Connecticut Ave., Washington, D. C.

Inter-American Congress of Radiology, Mexico City, Mexico, Nov. 2-8. Dr. Guido Torres Martinez, Marsella No. 11, Mexico, D.F., Secretary-General.

International College of Surgeons, Madrid, Spain, May 20-24. Dr. Max Thorek, 850 West Irving Park Road, Chicago, Ill., U. S. A., Secretary-General.

International Congress of Biochemistry, Paris, France, July 21-27. Prof. Jean Courtois, 4, Avenue de l'Observatoire, Paris 6$^e$, France, Secretary.

International Congress of Comparative Pathology, Madrid, Spain, May 4-11. Prof. Carda-Aparici, Calle Fernando VI.8, Madrid, Spain, Secretary.

International Congress of Dermatology and Syphilology, London, England, July 21-26. Dr. Gordon B. Mitchell-Heggs, 5, Lisle St., London, W.C.2, England, General Secretary.

ernational Congress on Diabetes, Leyden, The Netherlands, July -12. Dr. F. Gerritzen, 33, Prinsegracht, The Hague, Netherlands.

ternational Congress of Dietetics, Royal Tropical Institute, Amsterdam, The Netherlands, July 7-11. Miss Diane J. Ten Haaf, Educational Bureau of the Nutritional Council, 42 Koninginnegracht, The Hague, Netherlands, *General Secretary.*

International Congress on Diseases of the Chest, Rio de Janeiro, Brazil, Aug. 24-30. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, Executive Secretary.

International Congress of Haematology, Mar del Plata, Argentina, Sept. 21-26. Dr. Carlos Reussi, Anchorena 1710, Buenos Aires, Argentina, Secretary.

International Congress of Health Technicians, Palais de la Mutualite, Paris, France, June 9-14. Secretariat General, 6 Square Desaix, Paris XV$^e$, France.

International Congress of the History of Medicine, Nice-Cannes, France, and Monaco, Sept. 8-18. Dr. F. A. Sondervorst, 124 Avenue des Allies, Louvain, Belgium, Secretary-General.

International Congress of Internal Medicine, Friends House, London, N.W.1, Eng. Sept. 15-18. Sir Harold Boldero, 12 Pall Mall East, London, S.W.1, England, Secretary.

International Congress on Medical Records, London, England, Sept. 7-12. Miss Gwen Perkins, 120 C Street S.E., Washington, D. C., Chairman.

International Congress of Medicine and Sport, Paris, France. May 29-June 1. Prof. Chailley-Bert, 1 rue Lacretelle, Paris 15$^e$, France, Chairman.

International Congress on Neuropathology, Rome, Italy, Sept. 8-13. Dr. Armando Ferraro, 722 W. 168th St., New York, N. Y., U. S. A., Secretary General.

International Congress of Oto-neuro-ophthalmology, Lisbon and Estoril, Portugal, April 22-26. Prof. Diogo Furtado, Servico de Neurologia, Hospital dos Capuchos, Lisbon, Portugal, General Secretary.

International Congress of Physical Medicine, London, England, July 14-19. Dr. A. C. Boyle, 45, *Lincoln's Inn Fields,* London, W.C.2, England, Hon. Secretary.

International Congress of Physiopathology of Animal Reproduction and Artificial Insemination, Copenhagen, Denmark, July 7-10. Prof. Ed. Sorensen, The Royal Veterinary and Agricultural College, Bülowsvej 13, Copenhagen V, Denmark.

International Congress of Urology, The Waldorf-Astoria, New York, N. Y., U. S. A., Sept. 15-18. Dr. John A. Taylor, 2 East 54th St., New York, N. Y., U. S. A., Secretary-General.

International Society of Geographic Pathology, Liège, Belgium, July 15-18. Dr. Fred C. Roulet, Habelstr. 24, Basel, Switzerland, Secretary *General.*

International Union Against Tuberculosis, Rio de Janeiro, Brazil, Aug. 24-27. Prof. *Etienne Bernard,* 66 Blvd. St. Michel, Paris 6e, France, Secretary-General.

Neuroradiologic Symposium, Stockholm, Sweden, Sept. 17-20. Docent Ake Lindbom, Symposium Neuroradiologicum, Serafimerlasarettet, Stockholm K., Sweden, Secretary.

Pan-American Congress of Gastroenterology, Mexico City, D.F., May 11-17. Dr. R. Flores-Lopez, *Calle Dr. Balmis,* No. 148, Mexico City, D.F., Secretary.

Pan-European Congress of Gastroenterology, Bologna, Florence and Rome, Italy, April 20-26. Prof. Guido Bassi, Policlinic of St. Orsola, Bologna, Italy, Secretary.

World Medical Association, Athens, Greece, Oct. 12-16. Dr. Louis H. Bauer, 2 East 103d St., New York 29, N. Y., Secretary General

# EXAMINATIONS AND LICENSURE

## NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Part II,* April 21-22; *Parts I and II,* June 18-20; *Part I,* September. All centers where there are five or more candidates. Exec. Sec., Dr. John P. Hubbard, 225 S. 15th St., *Philadelphia* 2.

## EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology: Various Locations, July 18. Final date for filing application was Jan. 18. Sec., Dr. C. B. Hickcox, 80 Seymour St., Hartford 15.

American Board of Dermatology and Syphilology: *Oral.* Chicago, May 1952. *Final date for filing application* was Feb. 1, 1952. Candidates must have completed three years of approved training prior to July 1, 1952. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

American Board of Internal Medicine: *Written.* Various centers and overseas, Oct. 20. Closing date for the acceptance of applications for the written examination will be May 1. *Oral.* Chicago, June 5-7, San Francisco, September or October; New York City, November or December. Subspecialty: Gastroenterology. *Examination.* Chicago, June 7. Exec. Sec.-Treas., Dr. William A. Werrell, 1 West Main Street, Madison 3.

American Board of Neurological Surgery: *Oral.* Chicago, May 1952. Final date for filing applications for the May 1952 examination was Jan. 1. Sec., Dr. W. J. German, 789 Howard Ave., New Haven 4, Conn.

American Board of Obstetrics and Gynecology: *Oral.* Chicago, June 9-13, 1952. Final date for filing application was Feb. 1, 1952. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

American Board of Ophthalmology: *Practical.* Philadelphia, May 29-June 3; Chicago, Oct. 6-10 and New York City, June 6-10, 1953. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

American Board of Orthopaedic Surgery: *Part I.* San Francisco and Washington, D. C., April 25-26. Sec., Dr. Harold A. Sofield, 122 South Michigan Ave., Chicago 3.

American Board of Otolaryngology. Toronto, May 13-17; Chicago, Oct. 6-10. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

American Board of Pediatrics: *Oral.* Washington, D. C., May 2-4; San Francisco, June 27-29; Chicago, October and Boston, late November. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

American Board of Physical Medicine and Rehabilitation: *Parts I and II.* Chicago. June 8 and 9. Sec., Dr. Robert L. Bennett, Georgia Warm Springs Foundation, Warm Springs, Ga.

American Board of Plastic Surgery: *Oral and Written.* St. Louis, May 17-19. Sec., Dr. Bradford Cannon, 4647 Pershing Ave., St. Louis 8.

American Board of Proctology. *Part I.* Kansas City, Minneapolis, Philadelphia and San Francisco. May 3. Examination includes both oral and written examinations in the basic sciences. *Dates and places tentative.* Sec., Dr. Louis A. Buie, 102-110 2d Ave., S.W., Rochester, Minn.

American Board of Psychiatry and Neurology: Chicago, June 13-14. Final date for filing applications was March 15. New York City, Dec. 15-16. Final date for filing applications is Sept. 15. Sec.-Treas., Dr. David A. Boyd, Jr., 102-110 Second Ave. S.W., Rochester, Minn.

American Board of Radiology: *Oral.* Spring 1952. Final date for filing application was Dec. 31. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various Centers. October 1952. Sec., Dr. J. Stewart Rodman, 225 15th St., Philadelphia.

# DEATHS

**Kiger, William Henry** ⊕ Los Angeles; born in 1876; Toledo Medical College, 1900; professor emeritus of proctology at the College of Medical Evangelists; an Associate Fellow of the American Medical Association and in 1943 a member of its House of Delegates; in 1928 president, and for 12 years on the governing council of the California Medical Association; for 22 years on the governing council of the Los Angeles County Medical Association, and in 1924 president; specialist certified by the American Board of Surgery and the American Board of Proctology; member and past president of the American Proctologic Society; fellow of the American College of Surgeons; veteran of the Spanish-American War; member of the surgical staff, Los Angeles County Hospital; member of the staff, Hospital of the Good Samaritan, Methodist Hospital of Southern California, California and Cedars of Lebanon hospitals, and Presbyterian Hospital-Olmstead Memorial; died February 10, aged 75, of carcinoma of the prostate.

**Levine, Eugene Boris** ⊕ Los Angeles; born in Lawrence, Mass., [illegible] 12, 1914; Louisiana State University School of Medicine, New Orleans, 1939; certified by the National Board of Medical Examiners; specialist certified by the American Board of Internal Medicine; member of the board of directors of the Los Angeles Heart Association; assistant professor of medicine at the College of Medical Evangelists; consultant in cardiology to the Los Angeles City Health Department; chief of the cardiac clinic of Cedars of Lebanon Hospital; senior attending physician at Los Angeles County Hospital; died Feb. 26, aged 37, of Hodgkin's disease.

**Leeper, Edward Paul** ⊕ Dallas, Texas; University of Texas School of Medicine, Galveston, 1928; clinical assistant professor of medicine, Southwestern Medical School of the University of Texas; formerly on the faculty of Baylor University College of Medicine; fellow of the American College of Physicians; member of the American Heart Association and the American Diabetes Association; city health officer for University Park; medical director for Praetorian Life Insurance Company; served during World War II; affiliated with Parkland, Methodist and Medical Arts hospitals; died Feb. 9, aged 48, of a heart attack.

**Oliphant, John William** ⊕ Medical Director, U. S. Public Health Service, Washington, D. C.; born in Fort Branch, Ind., July 6, 1901; Indiana University School of Medicine, Indianapolis, 1931; commissioned in the U. S. Public Health Service in 1932; formerly assistant director of the Rocky Mountain Laboratory of the U. S. Public Health Service in Hamilton, Mont.; from 1938 to 1946 assigned to the National Institute of Health in Bethesda, Md., where he was serving at the time of his death; member of the American Epidemiological Society; died Jan. 10, aged 50, of accidental carbon monoxide poisoning.

**Ackermann, William** ⊕ Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1896; member of the National Gastroenterological Association; formerly on the faculty of Marquette University School of Medicine; died Jan. 26, aged 76, of arteriosclerosis, hypertension, and carcinoma of the stomach.

**Alford, Redman Lee** ⊕ Vandalia, Mo.; Marion-Sims College of Medicine, St. Louis, 1896; served as mayor and member of the board of public works and school board; for several years member of the board of visitors of the University of Missouri, Columbia; affiliated with Audrain Hospital in Mexico; died Jan. 15, aged 79, of emphysema.

**Allison, Jackson Way**, York, Pa.; University of Pittsburgh School of Medicine, 1928; member of the American Medical Association; served during World War II; died Jan. 15, aged 50, of cerebral hemorrhage.

**Bailey, Bayard Melvin**, La Jolla, Calif.; University of Illinois College of Medicine, Chicago, 1923; died in Scripps Memorial Hospital Feb. 4, aged 55.

**Buckner, Roy Alvan**, Gilman, Ill.; Chicago College of Medicine and Surgery, 1911; member of the American Medical Association; served as mayor of Gilman; affiliated with Iroquois Hospital in Watseka; died Jan. 15, aged 68, of carcinoma of the intestine.

**Clark, Hines** ⊕ Crowell, Texas; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1900; health officer of Crowell and of Foard County; instrumental in establishing the Foard County Hospital, which was opened in 1941; his portrait was hung in the hospital lobby in December, 1951, on the 51st anniversary of his medical practice in the county; served during World War I; died in Wichita Falls Clinic Hospital, Wichita Falls, Jan. 22, aged 75, of coronary thrombosis.

**Coleman, Joseph Gilbert**, Hamburg, N. J.; Albany (N. Y.) Medical College, 1897; member of the American Medical Association; past president of the Sussex County Medical Society; president of the Hardyston National Bank; died in Franklin (N. J.) Hospital Feb. 2, aged 76, of obstructive jaundice due to inoperable carcinoma.

**Coomes, M. Joseph**, Shelbyville, Ind.; Louisville (Ky.) Medical College, 1892; member of the American Medical Association; served during World War I; died in the W. S. Major Hospital Jan. 6, aged 81, following a fracture of the femur received when struck by an automobile.

**Davis, Egbert Frank**, Wyandotte, Mich.; Detroit College of Medicine, 1908; member of the American Medical Association; on the staff of Wyandotte General Hospital; died in Harper Hospital, Detroit, Jan. 12, aged 75.

**Dickie, Emmet H.**, Chatsworth, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1913; member of the American Medical Association; served as mayor and member of the county board of health; died Nov. 15, aged 65.

**Dodd, William Lincoln**, Amity, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1888; died Jan. 18, aged 85, of senility.

**Downey, Louis J.**, Vincennes, Ind.; Washington University School of Medicine, St. Louis, 1902; formerly physician for the Indiana Boys' School in Plainfield; died in Good Samaritan Hospital, Vincennes, Jan. 3, aged 76, of coronary infarction and arteriosclerosis.

**Durley, Howard**, Milan, Tenn.; Rush Medical College, Chicago, 1910; died in St. Mary's Hospital, Humboldt, Jan. 12, aged 75, of a cerebral accident, chronic myocarditis, and hypertension.

**Eason, Samuel Echols**, New Albany, Miss.; Memphis (Tenn.) Hospital Medical College, 1905; twice elected vice-president of the Mississippi State Medical Association, serving as councilor of the third district for four years; past president and secretary of the North Mississippi Medical Society; president of the state board of health and formerly county health officer; on the staff of New Albany Hospital, where he died Jan. 26, aged 72, of chronic myocarditis.

**Evans, Arthur John** ⊕ Magdalena, N. M.; Louisville (Ky.) Medical College, 1905; formerly state senator and district health officer; a contract physician in the U. S. Army from 1937 to 1941; died in Albuquerque Jan. 28, aged 68, of carcinoma of the nasopharynx.

**Finch, Risdon W.**, Defiance, Ohio; Starling Medical College, Columbus, 1880; past president and secretary-treasurer of the Defiance County Medical Society; died Jan. 25, aged 95, of senility.

**Flax, Ira Isador**, Newark, N. J.; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1924; served during World War II; on the consulting staff of Veterans Administration Hospital in Lyons, on the staffs of Newark City and Beth Israel hospitals; died Jan. 26, aged 49, of coronary disease.

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⊕ Indicates Fellow of the American Medical Association.

**Flick, Earl Joseph,** Royal Oak, Mich.; Wayne *University College of Medicine, Detroit, 1937;* member of the American Medical Association; served during World War II; died Jan. 24, aged 40.

**Frey, Emmett Malcolm,** Guthrie, Ky.; University of Tennessee Medical Department, Nashville, 1901; member of the American Medical Association; served during World War I; affiliated with Jennie Stuart Memorial Hospital in Hopkinsville; died Jan. 8, aged 76, of carcinoma.

**Fullerton, Walter Wilson** ⊕ Brockton, Mass.; College of Physicians and Surgeons, *Baltimore, 1895;* on the staff of Brockton Hospital; died Jan. 4, aged 80, of coronary thrombosis.

**Garrick, Nathan Henry,** Boston; Boston University School of Medicine, 1915; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychiatric Association; formerly assistant professor of neurology at his alma mater; on the honorary staff, Massachusetts Memorial Hospitals; died Jan. 2, aged 66, of cardiac failure.

**Gear, Patrick Edward** ⊕ Holyoke, Mass.; Harvard Medical School, Boston, 1919; member of the House of Delegates of the American Medical Association in 1945, 1945, and 1948; fellow of the American College of Surgeons; served as president of the staff of Holyoke Hospital and Providence Hospital, where he died Jan. 20, aged 57, of hypertensive heart disease.

**Geissler, Elmer Edwin,** Gloucester City, N. J.; Temple University School of Medicine, Philadelphia, 1918; member of the American Medical Association; served during World War I; medical inspector for the public school; died in West Jersey Hospital, Camden, Jan. 13, aged 64, of arteriosclerotic cardiovascular disease and Parkinson's disease.

**Gibbs, Emmett Wyattman,** Shelby, N. C.; University of North Carolina School of Medicine, Chapel Hill, 1907; member of the American Medical Association; died Jan. 14, aged 79, of coronary sclerosis.

**Gifford, Samuel Lee,** Rome, N. Y.; University of the City of New York Medical Department, New York, 1893; member of the American Medical Association; formerly practiced in Whitesboro, where he was health officer; served as health officer of the town of Whitestone; died Jan. 8, aged 82, of cerebral hemorrhage.

**Grave, Floyd** ⊕ Minneapolis; Johns Hopkins University School of Medicine, Baltimore, 1914; fellow of the American Society of Clinical Pathologists; past president of the Minnesota Academy of Medicine; served during World War I; affiliated with St. Barnabas Hospital, Eitel Hospital, Veterans Administration Hospital, and Asbury Hospital, where he died Dec. 20, aged 67, of coronary thrombosis.

**Guagliata, Vincent,** Chicago; National Medical University, Chicago, 1903; died Jan. 8, aged 75, of pyelonephritis and prostatic hypertrophy.

**gan, Eugene Anthony,** Pawtucket, R. I.; Georgetown Uni-sity School of Medicine, Washington, D. C., 1931; died Jan. , aged 50, of coronary thrombosis.

**Hamilton, James M.,** Chicago; Rush Medical College, Chicago, 1895; died Jan. 11, aged 84, of acute myocardial infarction.

**Hasic, James LeRoy,** De Kalb, Miss.; University of Tennessee College of Medicine, Memphis, 1929; member of the American Medical Association; served during World War II; affiliated with Kemper County Hospital; died in Daytona Beach, Fla., Jan. 14, aged 46, of a heart attack.

**Henning, Harry Hugh,** Chicago; Dearborn Medical College, Chicago, 1905; died Jan. 18, aged 80, of coronary occlusion.

**Hewitt, James Ernest,** Summit, Miss. (licensed in Mississippi in 1907); died Nov. 15, aged 70, of bronchopneumonia and pancreatitis.

**Hubbard, William Eugene,** North Little Rock, Ark.; University of Oklahoma School of Medicine, Oklahoma City, 1943; member of the American Medical Association and the Oklahoma State Medical Association; served during World War II; resident in psychiatry at Veterans Administration Hospital; died Jan. 9, aged 35, of acute coronary occlusion.

**Karr, George Muster,** El Paso, Texas; Jefferson Medical College of Philadelphia, 1894; died Nov. 9, aged 76.

**Kestle, Charles William,** San Francisco; University of Colorado School of Medicine, Denver, 1931; member of the American Medical Association and Colorado State Medical Society; died in Stanford University Hospital Dec. 14, aged 44, of carcinoma of the tongue.

**Koessler, George Leo** ⊕ Detroit; Detroit Homeopathic College, *1905; served on the* staffs of William Booth Memorial and Grace hospitals; died Feb. 20, aged 72, of coronary thrombosis and hypertension.

**Krenning, William George,** St. Louis; Washington University School of Medicine, St. Louis, 1901; member of the American Medical Association; died Jan. 8, aged 76, of coronary disease.

**Krueger, Bernard** ⊕ Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1905; formerly practiced Cudahy, where he was health commissioner and school cian; on the staff of St. Luke's Hospital; died Jan. 6, of coronary sclerosis.

**Ledyard, Cory Childs,** Los Angeles; University of So fornia School of Medicine, Los Angeles, 1906; for on the staff of California Hospital, where he died J 68, of carcinoma of the prostate.

**Lee, Willie Allen,** North Little Rock, Ark.; College of Physicians and Surgeons, Keokuk, Iowa, 1893; *died Jan. 5, aged 91.*

**Lewis, Henry Harrison,** Buffalo; University of Buffalo School of Medicine, *1918;* affiliated with Millard Fillmore Hospital, Columbus Hospital, and Deaconess Hospital, where he died Jan. 15, aged 57, of brain tumor and diabetes mellitus.

**Lima, Joseph J. T.,** Twerton, R. I.; *Baltimore Medical College,* 1908; served *as president of the public library; died* Jan. 2, aged 79, of carcinoma of the liver.

**Lincoln, Jennings Sipe,** Montclair, N. J.; Johns Hopkins University School of Medicine, Baltimore, 1918; past president of Associated Physicians of Montclair and Vicinity; served overseas during World War I; affiliated with Mountainside Hospital, where he was staff president and where he died Jan. 21, aged 59, of coronary thrombosis.

**Littlefield, Anna Maria** ⊕ New London, N. H.; Woman's Medical College of Pennsylvania, Philadelphia, 1895; died Jan 3, aged 92, of cerebral arteriosclerosis.

**Longwell, Benjamin James,** Seminole, Pa.; Ohio Medical University, Columbus, 1904; member of the American Medical Association; died in Brookville (Pa.) Hospital Feb. 18, aged 72, of a fracture of the right hip sustained in a fall and colitis.

**Loose, David Nathaniel,** Maquoketa, Iowa; University of Pennsylvania Department of Medicine, Philadelphia, 1877; member of the American Medical Association; died in Orlando, Fla., Jan. 30, aged 96, of coronary thrombosis and diabetes mellitus.

**McClain, William Zid,** Marlow, Okla.; College of Physicians and Surgeons, Dallas, Texas, 1908; died at Crockett, Texas, Jan. 16, aged 68.

**McClenahan, Henry Eugene** ⊕ Youngstown, Ohio; University of Michigan Medical School, Ann Arbor, 1915; specialist certified by the American Board of Obstetrics and Gynecology; member of the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; served during World War I; on the staff of Youngstown Hospital; died Jan. 5, aged 67, of carcinoma.

**McDonald, David Lorenzo,** Duchesne, Utah; Medico-Chirurgical College of Philadelphia, 1907; at one time practiced in Salt Lake City, where he was affiliated with Dr. W. H. Groves Latter-Day Saints Hospital; died Jan. 15, aged 78, of pneumonia.

**McGillian, Eugene Francis,** New York City; Albany (N. Y.) Medical College, 1909; attached to the U. S. Veterans Administration at its New York City regional office; served during World War I; at one time practiced in Yonkers, where he was health commissioner from June, 1937, to August, 1946, and where he was director of Gray Oaks Hospital, and on the staffs of St. Joseph's, St. John's Riverside, and Yonkers Professional hospitals; died Jan. 10, aged 65, of coronary thrombosis.

**May, Harold Cameron,** Los Angeles; Hahnemann Medical College of the Pacific, San Francisco, 1908; member of the American Medical Association; served during World War I; died Jan. 29, aged 68.

**Meek, Henry G.,** Akron, Ohio; Baltimore University School of Medicine, 1893; died Feb. 6, aged 83, of coronary thrombosis.

**Molotchick, Maxwell Benjamin,** Lynn, Mass.; Middlesex College of Medicine and Surgery, Cambridge, 1928; member of the American Medical Association; affiliated with Union Hospital; died in City Hospital, Boston, Jan. 15, aged 48.

**Moore, William Thomas,** Marshall, Ark. (licensed in Arkansas in 1905); member of the American Medical Association; died in St. Vincent's Infirmary, Little Rock, Dec. 23, aged 75, of hepatitis.

**Mullins, Glenn R.** ⊕ Dublin, Ga.; Emory University School of Medicine, 1915; served during World War II; affiliated with Veterans Administration Hospital; died Nov. 4, aged 59, of dissecting aneurysm of the abdominal aorta.

**Neas, Ingall Howard,** Kansas City, Kan.; University of Kansas School of Medicine, Kansas City, 1935; member of the American Medical Association; served during World War II; died Dec. 25, aged 43.

**Netzel, Charles Frederick** ⊕ Plymouth, Pa.; Jefferson Medical College of Philadelphia, 1916; school physician; affiliated with Nesbitt Memorial Hospital, where he died Jan. 17, aged 57, of ruptured aneurysm of the abdominal aorta.

**Nickson, Delbert Harry** ⊕ Seattle; University of Oregon Medical School, Portland, 1917; specialist certified by the American Board of Pathology; member of the American Society of Clinical Pathologists; for many years affiliated with Swedish Hospital; died Jan. 2, aged 61, of rheumatic and hypertensive heart disease.

**Noble, Herbert T.,** Bayside, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1895; died Dec. 3, aged 81, of heart disease.

**Norstedt, Johann Albert,** Nanticoke, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1908; served on the staff of the Nanticoke State Hospital; died in Hackensack, N. J., Jan. 20, aged 66, of cerebral hemorrhage.

**O'Brien, Francis Edward,** Leedy, Mass.; Fordham University School of Medicine, New York, 1917; received the Navy Cross for service during World War I; retired superintendent of the Hampshire County Sanatorium in Haydenville; died in the U. S. Veterans Hospital, Northampton, Feb. 15, aged 56, of coronary thrombosis.

**Olson, William Carolius,** Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899; affiliated with Edgewater and American hospitals; died in Cook County Hospital Jan. 5, aged 76, of bronchopneumonia, following fracture of the left femur sustained in an automobile accident.

**Openshaw, James Francis,** Goodland, Ind.; Indiana University School of Medicine, Indianapolis, 1936; served during World War II; died in the Robert W. Long Hospital, Indianapolis, Jan. 23, aged 44, of acute toxic hepatitis.

**Panetti, Philip A.,** Hustisford, Wis.; Kentucky School of Medicine, Louisville, 1892; member of the American Medical Association; died Dec. 16, aged 79, of bronchopneumonia and chronic myocarditis.

**Price, Enoch Cyril** ⊕ Lubbock, Texas; Southwestern University Medical College, Dallas, 1910; served during World War II; affiliated with Veterans Administration; died recently, aged 66.

**Quick, Ralph Andre,** Arlington, Va.; George Washington University School of Medicine, Washington, D. C., 1908; served with the American Red Cross in Europe during World War I; on the staff of Arlington Hospital; died Jan. 23, aged 69, of coronary thrombosis.

**Reale, Frank Paul** ⊕ Plainfield, N. J.; Loyola University School of Medicine, Chicago, 1938; affiliated with St. Peter's General Hospital in New Brunswick and Muhlenberg Hospital; died Feb. 7, aged 43, of rheumatic heart disease.

**Reilly, Henry M. A.,** New York; Jefferson Medical College of Philadelphia, 1896; at one time affiliated with All Souls Hospital in Morristown, N. J., attached to the Frances Schervier Home and Hospital, where he died Nov. 6, aged 79, of cerebral hemorrhage and arteriosclerosis.

**Reis, Roy Clifford,** San Francisco; University of Louisville (Ky.) School of Medicine, 1928; died Jan. 5, aged 53, of coronary occlusion and arteriosclerosis.

**Ripton, James Raymond** ⊕ Cleveland; Western Reserve University School of Medicine, Cleveland, 1920; fellow of the American College of Surgeons; affiliated with St. John's Hospital; died Jan. 27, aged 56, of coronary thrombosis.

**Rizzo, Patrick Charles,** Mount Vernon, N. Y.; New York Homeopathic Medical College and Flower Hospital, New York, 1930; member of the American Medical Association; on the staff of Mount Vernon Hospital; died Jan. 15, aged 48, of acute coronary occlusion.

**Rodenbaugh, Norman Fredrick,** Barberton, Ohio; Ohio Medical University, Columbus, 1893; at one time health officer; formerly affiliated with Citizens Hospital; served on the board of education; died Jan. 3, aged 86.

**Rosenberg, Arthur** ⊕ Brooklyn; University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore, 1933; affiliated with Israel Zion, Coney Island, and Madison Park hospitals; died in Mount Sinai Hospital, New York, Jan. 4, aged 45.

**Russell, John J.,** Putnam, Conn.; New York Homeopathic Medical College and Hospital, New York, 1887; member of the American Medical Association; for many years medical examiner of Putnam; on the staff of the Day Kimball Hospital; died Jan. 28, aged 85, of arteriosclerosis.

**Ryder, Anna L. Burkhart,** Chambersburg, Pa.; the Hahnemann Medical College and Hospital, Chicago, 1893; past president of the Franklin County Medical Society; on the staff of Chambersburg Hospital; died Jan. 1, aged 88, of terminal pneumonia.

**Salzer, Moses** ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1902; specialist certified by the American Board of Internal Medicine; assistant professor of medicine at University of Cincinnati College of Medicine; consultant in medicine, Jewish Hospital, and president of the medical staff from 1943 to 1945; died Jan. 6, aged 70, of cancer.

**Saunders, Archibald McGregor,** Cleveland; Detroit College of Medicine, 1897; died in Lakeland Jan. 29, aged 83, of diabetes mellitus.

**Scofield, Charles J.,** Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; affiliated with Illinois Central Hospital, died in Odell, Ill., Feb. 9, aged 73, of cancer.

**Scott, Martin Bruce,** Delaware, Okla. (licensed in Oklahoma under the Act of 1908); died Jan. 5, aged 72, of chronic myocarditis and arteriosclerosis.

**Seifert, Francis Robert** ⊕ Elkins Park, Pa.; Medico-Chirurgical College of Philadelphia, 1903; affiliated with Stetson and Episcopal hospitals in Philadelphia; died Jan. 6, aged 75, of carcinoma of the prostate.

**Shallcross, William G.** ⊕ Pittsburgh; Jefferson Medical College of Philadelphia, 1897; on the staff of St. Margaret's Memorial Hospital, where he died Jan. 2, aged 84, of coronary occlusion, following an operation for carcinoma of colon.

**Simmons, Clarence Wright,** Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1896; served for many years as a diagnostician for the bureau of health; died Dec. 29, aged 84.

## CORRECTION

**Physician Not Dead.**—The announcement in THE JOURNAL, March 22, page 1046, of the death of Dr. Joseph Boudinot Johnston Jr., of Kannapolis, N. C., was an error. Dr. Johnston is alive and in good health. It was Joseph Boudinot Johnston Sr., a doctor of divinity, who died.

# GOVERNMENT SERVICES

## PUBLIC HEALTH SERVICE

**Annual Report of Public Health Service.**—According to the annual report of the Public Health Service, the lowest death rate in the nation's history was recorded in 1951. The health status of the average American continues to be strengthened, according to the report. The death rate for 1951 was 9.6 per 1,000 population, 10% lower than in 1940. The average life expectancy at birth has risen to 68 years, compared with 47 at the turn of the century. The infant and maternal mortality figures dropped to the lowest point ever recorded in the United States. Infant mortality has fallen from 100 per 1,000 live births in 1915 to an estimated 20 per 1,000 in 1950. The death rate from tuberculosis dropped to 22 per 100,000 population, about 50% lower than the rate 10 years ago. Less syphilis was reported in 1950 than in any year since 1929; and less gonorrhea than at any time since 1942. The 33,209 cases of poliomyelitis in 1950 represented a 21% decrease over the all-time high of 1949. Only 42 cases of smallpox were reported during the year. With the increased numbers of persons living longer, the chronic diseases, however, are taking a greater toll. Diseases of the heart and cancer caused two-thirds of all deaths in 1950. Only half of the 3,070 counties of the United States are served by public health departments. Another 550 counties receive advisory and supervisory services from some sixty state health districts.

During 1951 state programs emphasized prevention and control of chronic diseases. Control programs for cancer and heart disease received particular attention. Research in chronic disease kept pace with the expansion of control measures. Progress is reported in cancer research, in mental health research, and in dental research. To promote more extensive research, two new institutes were established during the year; the Institute of Arthritis and Metabolic Diseases and the Institute of Neurology and Blindness. Construction of the new clinical center building was reported 59% completed at the close of 1951. The center, which will be ready for occupancy in 1953, will give the National Institutes of Health, the research arm of the service, its first opportunity to conduct clinical research on a wide scale.

The Public Health Service is greatly concerned with health problems related to the national emergency. Among projects undertaken in this area during the past year were development of a plan for the rapid detection and reporting of disease epidemics, study of the effects of radioactive wastes on water uses, and special training in radiological health. The service has also responded to increasing demands for advice and counsel on health matters, for the loan of experts for defense activities, and for the staffing and conduct of special projects.

The advances toward longer and healthier American lives have n brought about by medical research, expanded hospital ilities, and improved local health services, the report said. uring the past year all 53 states and territories surveyed their hospital resources and reported that there are now slightly more than one million hospital beds available. There was an increase of 142,000 beds during the year, half of them constructed with assistance under the Hill-Burton program administered by the Public Health Service.

**Survey of Cancer in Pittsburgh.**—The incidence of cancer among residents in the Pittsburgh area apparently increased 30% from 1937 to 1947, according to a survey just released by the National Cancer Institute of the Public Health Service. The greatest increase noted was for cancer of the bronchus and lung, the incidence for which almost doubled during the 10-year period. Some of the apparent increase in cancer incidence is attributed to improvements in diagnostic techniques and case-finding methods. Another reason is that the proportion of older persons in the population has increased. Cancer occurs 120 times as frequently in persons over 65 as in children under 15, the survey points out. The Pittsburgh survey was carried out in cooperation with the Allegheny County Medical Society, the Hospital Council of Western Pennsylvania, and city and state health departments.

The director of the Cancer Institute, Dr. John R. Heller, said, "There is evidence which suggests that cancer patients in the Pittsburgh area are receiving better medical care than they did in 1937. The survey notes that more cancer patients received hospital attention in 1947 than 10 years previously. Further, we note that greater numbers of cancers were confirmed by microscopic examination of the tissues involved. Improvements such as this have made for the positive identification of malignancies."

As in the other surveys already published, there was a much greater increase in cancer incidence among males than in females. One of the main sex differences noted in the 10-year period was for cancer of the bronchus and lung, which remained the same for females and increased 147% among males. Among males in the Pittsburgh area, the commonest cancer sites were digestive system, 36% of all cases; skin, 13%; respiratory tract, 12%; and genital organs, 11%. Among females, the commonest cancer sites were digestive system, 27%; genital organs, 23%; breast, 20%; and skin, 9%.

The Pittsburgh survey indicates that early diagnosis is closely related to chances for survival. This was clearly shown by the 12-month survival rates for cancer of the uterus. When diagnosed in a localized stage, the 12-month survival rate for uterine cancer was 89%. When there was regional involvement, 75% of the women with uterine cancer survived for one year. This percentage dropped to 15% when cancer diagnosis was made after metastasis had set in.

**Close Hospital on Martha's Vineyard.**—The Public Health Service Hospital at Vineyard Haven has discontinued admitting patients and will be closed as soon as provision can be made for patients now in the hospital. Surgeon General Scheele recommended closing the 30 bed federal hospital because the number of patients treated has declined to about 40% of its capacity. Dr. Scheele based his decision on the findings of a special survey board appointed to study the operations of the hospital. The board noted that only 29% of the patients admitted to the hospital in recent periods were residents of Martha's Vineyard.

The Public Health Service will assume full medical care for coast guardsmen and seamen, who are the principal Service beneficiaries at the Vineyard Haven Hospital. The Public Health Service will appoint a private physician on Martha's Vineyard to render outpatient care to eligible persons. Patients requiring hospitalization will be referred to the Public Health Service Hospital in Boston, a 300 bed institution with comprehensive medical, surgical, and allied professional services. The new Veterans Administration hospital recently opened at Providence, R. I., and others soon to be completed in the Boston vicinity provide amply for veteran patients now served by the Vineyard Haven Public Health Service Hospital.

## MISCELLANEOUS

**Emergency Portable Laboratory.**—A portable clinical laboratory chest for use in improvised hospitals during emergencies has been developed by Federal Civil Defense Administration's Health and Welfare Office. The wooden frame chest, two ft. long, about that high, and a foot deep, when completely filled weighs about 75 lb. The portable laboratory is built to provide blood and urine tests, and some other procedures, such as spinal fluid, fecal specimen, and sputum examinations. Built according to FCDA's requirements, these chests will be part of the equipment stored in federal warehouses, available to the states in emergencies immediately following enemy attack. The chest, fully equipped, costs about $125. Pilot models for trial are being purchased in small quantities. Procurement of larger quantities may be possible next year if federal funds are available.

# FOREIGN LETTERS

## BELGIUM

**Gastric Diseases and Diseases of Blood.**—At a meeting of the Belgian Society of Gastroenterology, several authors studied the aspects, repercussions, and relationships of diseases of the blood and those of the digestive tract. Lambin gave a résumé of the opinions expressed in the course of this discussion.

It is useful to investigate the secretion of hydrochloric acid, not only in patients with pernicious anemia but also in those with chronic hypochromic anemia, with the injection first of 1 mg. of histamine and afterwards of 4 mg. Patients who react to this last dose have only a transient case of achlorhydria; the stomachs of the others have lost the power of secretion. Patients with pernicious anemia are, with rare exceptions, refractory to histamine. It is important in hypochromic anemia to prescribe hydrochloric acid simultaneously with trivalent preparations of iron to assure its absorption or else to give bivalent iron.

The digestive manifestation most characteristic of iron deficiency is the Plummer-Vinson syndrome, which responds rapidly to appropriate treatment with iron. The characteristic modifications may be evidenced by a suitable radiological technique (Laurell). Gastric observations in the course of pernicious anemia show that gastritis is frequent but not constant and that its development is independent of that of anemia. Patients with pernicious anemia are predisposed to gastric polyposis and to cancer of the stomach. The gastrogenic theory of polycythemia rests on a slender foundation, but the increased incidence of ulcers among patients with this disease has not yet received a satisfactory explanation. Esophageal and gastroduodenal lesions are rare in the course of leukemias. The most typical is that of chronic lymphadenosis.

Digestive localizations of Hodgkin's disease are comparatively rare; primary lesions are exceptional and are generally mistaken for cancer. A diagnosis of cancer is likewise usually made in cases of lymphosarcoma and reticulosarcoma. Extirpation, in all these cases, may lead to a long survival. Irradiation treatments are indicated because of the radiosensitivity of lymphogranulomatous and lymphosarcomatous or reticulosarcomatous tissues, in spite of the inconveniences arising from the resolution of the visceral lesions, which leads to the production of fibromatous cicatrices and perivisceritis.

In the hemorrhagic diatheses mention must be made of gastric localization of familial hemorrhagic angiomatosis. The hemorrhages of this condition are favorably influenced by large doses of rutin. Isolated gastric purpura deserves more ample study.

The massive digestive hemorrhages that often complicate fibrous and congestive enlargement of the spleen (Banti's syndrome) are not explained simply by the rupture of esophageal varices. Account must be taken of the alterations in the veins of the submucosa in the areas tributary to the splenic vein as well as neurogenic vasomotor attacks. The frequency of gastroduodenal ulcers in these patients is likewise unexplained. The problem of the surgical treatment of this affection is being fully studied. Not only must splenectomy be carried out but the associated disturbances of the portal circulation must also be corrected.

The search for the cause of secondary anemia of digestive origin has made notable progress, thanks to the increasing precision of radiological techniques. The importance of diaphragmatic hernia and especially that of the esophageal hiatus in these conditions has been demonstrated by radioscopy.

Prolapse of the gastric mucosa through the pylorus must also be noted as a cause of anemia. Finally, stress must be laid on the useful results of iron treatment in the hypochromic anemias of gastric cancers. Macrocytic anemia is less frequent, and true pernicious anemia is rare in cases of cancer.

The anemia observed after extensive gastrectomy is only one of the minor inconveniences of this operation. Pernicious anemia, in fact, is rare and slow to appear. Hematological observation will reduce the incidence of iron-deficiency anemia, and the administration of easily absorbable iron will rapidly relieve it.

**Histidine and Diagnosis of Pregnancy.**—Before the Royal Belgian Society of Gynecology and Obstetrics, Cheval and Hans reported the following clinical results obtained from the examination of urine for histidine in 175 patients, for the purpose of establishing a diagnosis of pregnancy.

1. The presence of histidine in the urine makes it possible to affirm that if a woman does not menstruate in the three days following the examination she is pregnant.

2. The absence of histidine in the urine shows that a woman is not pregnant or has a pregnancy that is not developing normally.

3. The amount of histidine in the normal woman remains stable throughout pregnancy.

4. The reduction in the amount of histidine in the course of pregnancy is pathological. In some cases, there are reasons to anticipate a toxemia of pregnancy or an infection of the urinary tract (colibacillus).

In the course of the discussion, Dr. Cheval pointed out to those who had previously obtained less convincing results that it was not formerly known that histidinuria exists in all women at the time of menstruation. He stressed the necessity, moreover, of using fresh reagents for the detection of histidine and also the fact that he had obtained a positive result in a case of fibroma in a woman who was not pregnant. De Rom, on his part, drew the attention of the assembly to the existence of positive histidinuria in almost all patients with epithelioma of the cervix.

**Council of State Annuls Code of Ethics.**—The decision of the Council of State to annul the Code of Medical Ethics has given rise to profound repercussions in medical circles and has awakened a lively curiosity on the part of the general public. The code, which was destined to serve as a guide, a kind of vade mecum for the Belgian physician, did not pretend to be either perfect or immutable. Because it did not meet the requirements of a government law, it has been annulled. But the decision will not alter the respect the majority of physicians have for it. It is certain that the present development of medicine requires important adjustments in all fields; the whole problem will have to be taken up again for the protection of the medical fraternity and in the interest of patients themselves.

**Teaching of Industrial Medicine.**—The Faculty of Medicine of Louvain, in collaboration with the Superior Industrial Institute, which has just been created at the university, is organizing, beginning with this year, a postgraduate course of instruction in industrial medicine, ending with the granting of a diploma as licentiate in industrial medicine.

The program includes the following subjects: biometry and physiology of labor; labor hygiene; occupational diseases; industrial toxicology; industrial traumatology, invalidism, and readjustment; industrial psychology; technology of industrial safety and hygiene; organization of work and personnel; social medicine; and labor legislation.

**Creation of an Institute of Hygiene and Epidemiology.**—The *Moniteur Belge* announces the creation, within the Ministry of Public Health and of the family, of an Institute of Hygiene and Epidemiology, combining the central laboratory of hygiene and bacteriology, the laboratory of inspection of foodstuffs, the laboratory of inspection of pharmacies, the laboratory of inspection of trade in meats, the office of vaccinations, and the sanitary inspection of ports, airports, and frontiers.

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The items in these letters are contributed by regular correspondents in the various foreign countries.

## ITALY

**Italo-Swiss Convention.**—Many specialists attended the Italo-Swiss convention of otologists, neurosurgeons, and ophthalmologists, held in Stresa, under the chairmanship of Professors Franceschetti and Montandon from Geneva. Professor Simonetta read a paper on the modern treatment of cerebral abscess. During the discussion that followed, neurosurgeons and otologists reached opposite conclusions, the former supporting radical treatment and the latter, conservative treatment. The neurosurgeons were in favor of a massive exeresis, and Professor Fasiani, a clinical surgeon from Milan, discussed 60 cases, showing roentgenograms, arteriograms, and encephalograms.

On the other hand, the otologists treated cerebral abscesses of otogenous origin with punctures, drainages, and antibiotics. Professor Casedesus, an otologist, stressed the importance of the use of a contrast medium in the abscess cavity, so that its growth could be followed. From the standpoint of mortality, the statistics given by both neurosurgeons and otologists were almost equal; however, it is difficult to compare treatment of, and death rate caused by, cerebral abscesses of different origin.

Professor Chaussé, from Paris, read a paper on tumors of the jugular foramen, stressing hemorrhagic tumors. These tumors often appear with a lesion of the seventh cranial nerve, and their growth lasts some years. Warning of the tumor's presence is given by otologic signs; roentgenographic investigations have great importance in diagnosis. Neurological signs are scarce, because the tumor develops posteriorly and does not compress the organs in the jugular foramen. Later, a bleeding polypus of the ear appears, inducing the patient to consult an otologist.

Professors Montandon and Monnier, from Geneva, described the simultaneous recording of nystagmus and changes in arterial pressure obtained by rotary excitation of the vestibular apparatus. Little study has been done on the action of rotary stimulation on the arterial pressure; the speakers, in their effort to define the characteristics of pressure variations during the prerotary and postrotary phases of stimulation, performed experiments on lightly anesthetized experimental animals.

On the basis of the clinical material from the optical clinic in Lausanne and his own material, Professor Streiff, from Lausanne, reported on trauma of the optical pathways. Speaking of trauma of the optic nerve, he emphasized the importance of the condition of the pupils, of stereoroentgenography, and of the pathogenetic causes of amblyopia and blindness. Treatment consists of decompression intervention on the optic canal. Traumatic lesions of the optic chiasm, the acoustic striae, and the retinal cortex are rarer. Professor Franceschetti, from Geneva, is in favor of opening the sphenoid sinuses in those instances in which the general condition of the patient does not justify a decompression operation on the optic canal. One patient who suffered cranial trauma regained his sight after the speaker opened the sphenoid sinuses. Professor Franceschetti advocated retrobulbar jections of vasodilator substances in patients with severe cases also as postoperative adjuvants. Prof. Sanvenero Roselli, Milan, discussed plastic operations of the orbit. He is gainst the use of plastic substances; he uses a fragment of bone taken from the patient's iliac crest.

**Arteriography with Gaseous Contrast Medium.**—Professor D'Errico reported to the Neapolitan Surgical Society the experimental and clinical results of his method of performing arteriography with a gaseous contrast medium, oxygen. The speaker thought of this method after he considered that oxygen is a good and perfectly harmless contrast medium. The danger of gas emboli forming after injection of oxygen into the arteries is practically nonexistent, because the gas spreads into the capillary bed, where part of it is absorbed by the tissues and part of it combines with hemoglobin of the blood before it reaches the right ventricle through the venous system. Professor D'Errico performed the first gaseous arteriographies in man; he injected, with a syringe, by means of manual pressure, small quantities (50 to 60 cc.) of oxygen into the femoral artery, using a very thin needle connected to the oxygen-filled syringe by means of a rubber tube. The results were satisfactory in that it was possible to visualize in all instances the artery into which the oxygen had been injected and its main branches.

Pneumoarteriography compared to arteriography with opaque contrast medium has the following advantages. 1. The contrast medium is completely harmless, so that the injection may be repeated more than once at the same sitting. 2. It is possible to use a very thin needle for the injection. 3. There are no arterial spasms; thus, the arteriograms correspond to the real condition of the artery. 4. There is no danger of damage from an accidental periarterial injection.

Although the arteriograms are not so clear as those obtained when an opaque contrast medium is used, Professor D'Errico found that they are always sufficient for the diagnosis.

## LONDON

**The Cost of Health.**—In a book that was just published, "The Cost of Health," Dr. Ffrangcon Roberts, a radiologist, who is equally well known for his frank writings on health problems and medical education, has made a candid analysis of the National Health Service. His book has provoked widespread interest, in both the lay and the medical press. Dr. Roberts is concerned with the reasons why the National Health Service, which, according to the National Health Service Bill, of 1946, was estimated to cost £152,000,000 a year, should now be costing over £400,000,000 yearly. In spite of this tremendous increase in expenditure, physicians' offices are crowded, hospital waiting lists are lengthening rapidly, and promised health centers are now almost figments of the imagination. Dr. Roberts does not believe that the increased cost of living, abuse of the service by patients, or administrative extravagance are responsible for more than a fraction of this increase. His diagnosis suggests a more deep-seated cause. In his analysis, he starts with the simple proposition that "the amount of treatment which any nation can afford to provide depends on productive capacity."

He points out that "it has been the advance of medicine which has set the pace throughout." In 1860, there were only 11,000 physicians in England and Wales, and, assuming their average income to be £500, the total, £5,500,000, represents practically the entire national expenditure on medical services. Today, there are over 45,000 medical practitioners in England and Wales. In 1900, there were 19,000 hospital beds in England and Wales, and, in 1946, there were over 90,000. "The increasingly rapid demand for medical treatment is the expression, not of a belated attempt to make up for past neglect, but of the efforts of the community . . . to keep up with the results of scientific research." The rate of progress has risen by leaps and bounds, and, in the last 10 years, it has been greater than ever before: "In these years medicine has undergone little short of a revolution, it is advancing more rapidly than the capacity of statesmen and administrators to deal with it." Figures are quoted from one general hospital, showing an increase in x-ray examinations from 516 in 1918, to 19,000 in 1950, with the cost of each examination in 1947, being three times as expensive as in 1930. There was an increase in medical examinations from 1,500 in 1927, to 39,260 in 1950, with a 32% increase during the last year, and there was an increase in the waiting list from 220 in 1937, to 2,700 in 1949. The increase in the cost per inpatient per week rose from £1.12*s.* in 1906, to £8.4*s.* in 1947, and the increase in the cost per outpatient per attendance rose from 1*s.*4*d.* in 1927, to 5*s.* in 1947. In 50 years, the number of beds in this hospital has been doubled, but the total staff has increased to 7 times the original number, the medical staff 12 times, and the nursing staff 5 times. This increasing acceleration in cost is not confined to England and Wales, and "the miscalculation of the cost of the Service was primarily due to the complete failure on the part of the Ministry of Health to realize that the system which the State took over in 1948 so far from being static, was intensely and increasingly dynamic."

In discussing "the mutual obligations of the individual and the state," it is pointed out that "it is the universal experience that state provision for sickness is followed by an increase in the incidence of sickness, and there is no evidence that the National Health Service is reversing this trend." Evidence from the United States and prewar Germany as well as from England and Wales is cited in favor of this conclusion. For instance, in the first year of the National Health Service, there was a rise in the absence rate in the Royal Ordnance Factories from 2.6 to 5.9%. Further, "there is no law to prevent patients from using their disabilities to tyrannise their fellow-men. They can abuse the services of their doctors . . . By their legal powers they compel general practitioners and hospitals to take troublesome protective measures." Then there is the paradox of the State providing both infertility and birth control clinics: "There is grim humour to be derived from the contemplation of a community, the vast majority of which voluntarily reduces its effective fertility, attempting to restore the balance by subsidising medicated procreation in the minority not naturally endowed with the capacity."

In comparing private and state insurance, Dr. Roberts points out that "in private insurance voluntary self-denial is an essential element. The insured foregoes the pleasures of the moment for security in the future, and is fully conscious of it. . . . In national health insurance the reverse is true; the burden of the compulsory contributions has been put forward as a reason for higher wages. . . . Private insurance companies honor their undertakings or go out of business. How the State has defaulted needs no emphasis . . . From the very outset the Government admitted that it could not meet its obligations . . . . Private companies take elaborate precautions to ensure that there is no pecuniary advantage in being ill. . . . In State insurance, on the other hand, there are many ways in which it pays to be ill . . . In all forms of private insurance the one essential is limitation of benefits . . . The promise of unlimited benefits, which is an essential part of the Service, cannot be honoured."

The chapter on the economic value of the physician can best be summarized by the following quote: "What is to count in medicine in the future? The qualities and experience which should result from a medical training, or the test-tube and the machine? Is medicine to degenerate into mass-production in which technicians multiply and leadership lies in the hands of those members of the profession with a flair for organisation and committee-work? If so, it is obvious that the State cannot at the same time continue to pay a number of four-figure salaries which would drive a commercial concern to bankruptcy. . . . If the doctor is to retain his ascendancy and his claim to a high salary he must use the machine only as an adjunct to his own brain. If he uses it instead of his brain the State cannot be expected to pay for both . . . There is subtle irony in the fact that, whereas the establishment of medicine as a profession was accompanied by the suppression of unqualified practice, the advance of medicine which has resulted is the Trojan horse which admits unqualified practice in the respectable form of lay assistance."

His summing up is epitomized in the following quotation: "A free and comprehensive health service is a noble ideal, but one which the country cannot under existing conditions attain . . . When the people realise that the benefits which can be derived from the Service depend primarily on national production, and that these benefits are adversely affected by all inflationary tendencies—restrictive practices, strikes, lock-outs, go-slow tactics—then only will they be worthy of the fruits of their own inspiration."

**Scottish Air Ambulance Service.**—In the highlands and islands of Scotland, transportation and communication facilities are inevitably primitive compared with the rest of the country, and, during the long northern winters, many of these Scottish islands are stormbound. The medical service provided for them by the Department of Health for Scotland has long been recognized as a model of its kind; one of its features is its air ambulance service. This service was inaugurated in 1933, when a physician on the island of Islay arranged for a desperately ill patient to be flown to hospital in Glasgow. The service developed rapidly, and, after the 1939 to 1945 war, responsibility for it was taken over by British European Airways. Rapid biplanes are used, three seats being removed to make room for a stretcher. A plane is always available for emrgency calls, and the service attempts to have the plane in the air within half an hour of receiving a call during the day and within an hour at night. During the 19 years since the service was established, there has never been a fatal accident, an outstanding record in view of the poor flying conditions and the inadequate landing grounds. As often as not, the islands are stormbound or cloudbound, and, in some instances, the landing ground is a 500 yard grass strip or a stretch of sand. The latter may be under water during high tide.

Any physician in an outlying area has authority to send for an air ambulance if he has a case that he considers sufficiently urgent to require immediate removal to the hospital. This is done by telephoning movement control at the appropriate airfield near Glasgow. The rest is done by British European Airways. A nurse flies in each air ambulance, and a pool of nurses for this purpose is provided by one of the Glasgow hospitals. As the plane approaches the airfield at Glasgow or Aberdeen, it notifies movement control of its expected time of arrival, and an ambulance is waiting on its arrival to take the patient to the hospital. This service is frequently used; the busiest year was 1949, during which aircraft flew over 72,000 miles in carrying 350 patients on 305 flights. Most of the cases, in their order of frequency, are surgical, medical, accident, or maternity. The youngest patient was a 3 lb. (1.3 kg.) premature infant, if one omits the infant born on the aircraft on its way to Glasgow, and the oldest patient was a lady of 90. When helicopters become available, it is hoped that it will be possible to make use of them in providing an air ambulance service to those smaller islands where fixed wing aircraft are unable to land.

## SPAIN

**Congress on Digestive Diseases and Nutrition.**—The Sixth Congress of Pathology of the Digestive Tract and of Nutrition was recently held in Santander. Mr. Ruiz Jiménez, Minister of National Education, was president. Dr. A. Cortés Lladó, professor of surgery of the faculty of medicine of Seville, spoke on surgical treatment of cancer of the colon. In the beginning, cancer of the colon is relatively benign; early diagnosis and treatment are important. To find the initial site from which the tumor is growing as well as to ascertain its size and relation to nearby structures, a thorough examination of the colon and a careful interpretation of the clinical symptoms are necessary. Adequate preoperative and postoperative treatment will result in lowering the mortality rate to 5% and in prolonging the life span of the patients from three to five years after the operation. The patients should have antibiotics and other supportive treatment. Cancer of the colon calls for surgical removal of the involved segment. The incision for the operation should be large, permitting visualization of the entire abdominal cavity, so that the extent and stage of the disease can be judged. When a complete operation cannot be performed because of acute obstruction, acute infection, adhesions, or the patient's low resistance, operations for internal or external derivation are indicated. External derivation is preferable when the tumor is in the left colon. Care is taken that the maneuvers of mobilizing and lowering the colon do not interfere with the anus. There should be extensive resection of the intestinal segment and its mesentery, including certain lymph nodes and zones of adhesion. The arteries and veins should be carefully observed to determine which are to be preserved and which should be sacrificed. The remaining part of the intestine should have a sufficient blood supply. Colectomy with immediate reconstruction of the intestine is advisable, regardless which segment of the colon the tumor is located in, if the tumor is not infected and the patient has complete preoperative treatment. Lateral anastomoses are useful when there is fatty infiltration of the intestines and the blood supply of the intestinal ends is poor. In left colectomy, a colostomy is useful. In the patients treated by the speaker, the mortality rate varied between 5 and 10%. The life span after the operation was more than five years in 60% of the patients.

Prof. A. Gallart Esquerdo of Barcelona discussed the diagnosis of cancer of the colon, as based on personal experience. He observed 18 cases of cancer of the cecum, 21 of the ascending segment of the colon, 8 of the hepatic angle, 10 of the transverse segment of the colon, 1 of the splenic angle, 11 of the descending segment of the colon, and 31 of the sigmoid flexure. There are no rigid criteria regarding age and sex of the patients; psychogenic trauma is a causal factor. In 16.6% of the cases observed by the speaker, cancer of the cecum involved the ileocecal valve (histopathological verification). The speaker classified cancer of the colon into two macroscopic types, the infiltrating type and the ulcerovegetating cancer. With scirrhous cancer, there are no indications of its histological type. Any type of cancer may develop in either the right or the left segments of the colon; however, the ulcerovegetating form predominates in the right colon and the infiltrating form in the left colon. Polypi were observed in 4% of the patients. The degree of malignancy of the tumor should be determined by histological study of representative sections. In the cases observed by the speaker, perforation into the bladder, the skin, and the free peritoneum did not occur. Colon-duodenal, colon-gastric, and colon-jejunal fistulas and involvement of the kidney or the genital organs of the women were observed. There is no direct relationship either between the apparent origin of cancer of the colon and the involvement of the lymph nodes or between the involvement of the lymph nodes and the local growth of the tumor. Metastases to the lymph nodes occur late. The clinical symptoms of early cancer of the colon are varied. Any symptom suggesting a diseased intestinal condition may correspond to the early stage of the disease. The classical general symptoms (precordial anorexia, etc.) appear so late in the course of the disease that, sometimes, the cancer is in an advanced stage before any symptoms are detected. When an intestinal tumor becomes palpable, the cancer has already reached an advanced stage, often with complications. The speaker described, from a didactic viewpoint, two clinical forms of cancer that occur in either the right or the left colon. The diagnosis of cancer of the colon is made by rectosigmoidoscopy, together with vaginal and rectal digital palpation and roentgen examination. The roentgen examination is preceded by insufflation of air. Serial radiographs are taken in the course of the introduction of barium and especially of thorium. These examinations should be repeated periodically until there is an image of the stricture or remote circular dilatation. These images are the most frequently observed in the advanced stages of cancer; however, the changes that exist in the proximal and distal zones of the normal colon, which are in contact with the neoplastic segment, constitute the most valuable data for the diagnosis. Early diagnosis of cancer of the colon is extremely rare at present. The layman does not recognize the early symptoms of the disease as they are mild and of long duration. Nearby or remote metastases often appear when the symptoms have lasted only a few months. Furthermore, physicians often think of cancer of the colon only when the size of the tumor is already noticeable.

The third topic discussed was the syndrome after cholecystectomy. Dr. S. Carro, of Madrid, was the official speaker. The diagnosis is based on the results of a thorough examination. Among the most frequent operative complications after cholecystectomy are the following: lithiasis of the common bile duct, stricture of Oddi's sphincter, pancreatitis, perivisceritis, and extrabiliary diseases, some of which may have been present before the operation and may have been overlooked during it. The name of syndrome after cholecystectomy should be reserved to designate the disorders caused by changes of the vesicular functions but not other diseases that may have been either overlooked or diagnosed erroneously. Some of these sequels or syndromes, such as the residual lithiasis of the common bile duct, the stricture of the bile ducts or Oddi's sphincter, perivisceritis, biliary fistula, and stenosing pancreatitis, call for surgical treatment. Medical therapy is indicated in dyskinesia due to inflammation, infection, endocrine or psychogenic disorders, functional changes caused by the removal of the gallbladder.

artin Lagos, professor of surgery of the faculty of medi- he University of Madrid, did not agree with the name the disease that may appear after cholecystectomy; he ed that it is no more than a recurrence of the symptoms t were present before the operation. The treatment consists in preventing the recurrence during the first operation. Removal of the gallbladder results in diminishing true recurrences.

## SWEDEN

**Infectious Hepatitis as a Medical Risk.**—In Sweden and Denmark, steps have been taken to ascertain whether physicians are more likely to develop infectious hepatitis than other members of the community. In Sweden, Dr. J. P. Strömbeck has organized a statistical enquiry among physicians to whom a questionnaire was addressed on this subject. More than 4,000 members of the Swedish Medical Association who received this questionnaire were classified into three groups according to whether they were (1) in general practice, (2) in hospital practice not concerned with operations (including physicians and radiologists), or (3) in hospital practice requiring operations (including surgeons and obstetricians). Among the 4,030 recipients of this questionnaire, there were 3,802 who answered it satisfactorily. There were 531 physicians who, at some time, had suffered from hepatitis once and 22 who had hepatitis more than once. In many instances, hepatitis had developed early in life, and special interest was attached to the patients in whom this disease had appeared after the age of 25. The hepatitis rate was higher among physicians in hospitals than among those in general practice. It was also higher among the hospital physicians who operated than among those who did not operate; the difference between these two groups of physicians was not great enough to be statistically significant.

In Denmark, Dr. Sten Madsen addressed a similar questionnaire to some 4,700 physicians, 94% of whom sent in answers. The answer rate was almost exactly the same as that in Sweden, which was 94.3%. Dr. Madsen found that about 8% of the physicians questioned had suffered from hepatitis before the age of 18 years and that about 10% had done so in adult life. In Denmark, as in Sweden, it seems that, in adult life, the risk of developing infectious hepatitis is greater for physicians than for others. To provide himself with satisfactory control material, Dr. Madsen is planning to investigate the hepatitis rate in other groups in the community, such as lawyers.

According to the survey taken in Sweden, it may be noted that since infectious hepatitis was included among the notifiable diseases in 1931, its frequency rate has risen enormously. During the period 1931-1937, the annual rate was about 1,300. During the period 1943-1946, there were some 7,000 cases notified every year, and, in 1948, the notifications rose to 11,736. It is particularly in the large towns that recent epidemics of hepatitis have assumed disquieting proportions, and Stockholm's fever hospital has had to organize a special department for the accommodation of some 100 patients at a time. A clear distinction is now drawn between the epidemic hepatitis resulting from infection of the digestive tract (with an incubation period of from three to five weeks) and inoculation hepatitis (with an incubation period of two to four months). The serious problems raised by both these forms of hepatitis led the Swedish ministry of health, in 1949, to issue a memorandum on the subject.

**Payment for Blood Donors.**—Dr. Bengt Gullbring, who is a member of the staff of Caroline Hospital (Karolinska Sjukhuset) in Stockholm, has reviewed, in the organ of the Swedish Medical Association, *Svenska Läkartidningen*, the pros and cons of giving blood donors material compensation for their services. It is a common experience that the supply of blood given gratis requires many appeals, whereas much less publicity is needed for the recruiting of donors given substantial payment for their blood. In Sweden, it is customary to pay a donor 20 to 30 crowns out of public funds for each donation. In 1949, 1,500,000 crowns were paid for such services.

In the spring of 1951, Dr. Gullbring sent a questionnaire to 1,000 donors, who were requested to express their opinions on payment or nonpayment for their blood. The names of 748 of the donors were protected by anonymity. The first question was; "What is the most important reason for which you give blood? Is it out of idealism, i. e., to help ailing fellow-beings, or for profit?" The answers showed that idealism was the chief motive in 18%, profit the chief motive in 52%, and both motives in 15%; no answers or obscure answers were given in the remaining 15%.

The second question was, "Would you give blood if you were not paid for it in cash (28 crowns)?" The answer was in the affirmative in 34%, and in the negative in 46%; the donor did not know in 15%. No answers or obscure answers were given in the remaining 5%. Several of the donors who were unwilling under present conditions to give their blood gratis wrote that they would do so in case of war. It should be noted that the recipients of this questionnaire were already donors on a commercial basis. They could not, therefore, necessarily be regarded as representative of the community as a whole. For this and other reasons, Dr. Gullbring warns against the application of his findings to the question of payment or nonpayment as a whole. Nor can conditions in Sweden be compared directly with those in other countries, such as the United States, where the donor is paid by the patient directly and is not reimbursed out of public funds. But it may be taken as a general rule that gratuitous blood donation presupposes repeated public appeals to idealism. Such appeals must be wisely spaced. Otherwise, an injudicious rush of appeals may yield an embarrassing rush of overgenerous donors.

# CORRESPONDENCE

## ANESTHESIA IN OPERATION FOR PHEOCHROMOCYTOMA

*To the Editor:*—In a paper concerning anesthesia in operations for pheochromocytoma, in THE JOURNAL, Jan. 19, 1952, Papper and Cahill state, "no ill-effects from the sympathomimetic action of ether have been noted." They also state that the use of N, N-dibenzyl-beta-chloroethylamine (dibenamine®) 24 hours preoperatively "is not without risk, because of a sustained hypotension."

Decker and associates (*J. A. M. A.* **147**:642 [Oct. 13] 1951), in discussing the operative treatment of a case of pheochromocytoma, mention a fatality due to irreversible shock following removal of the tumor and suggest that "dibenamine® apparently had rendered the patient refractory to epinephrine."

Recently in January, 1952, a case of paroxysmal hypertension in a 31-year-old white man was successfully cured with the operative removal of a pheochromocytoma by Dr. John B. Flick. The anesthetic problems in this patient were the most difficult to manage. Thiopental (pentothal®) sodium was used for induction, but sufficient relaxation was not obtained to permit endotracheal intubation. Ether was given and the tube inserted. Despite administration of 2-(N-*p*-tolyl-N-[*m*-hydroxyphenyl]-aminoethyl)-imidazoline hydrochloride (regitine®) intramuscularly just before induction, and despite the continuous use of piperoxan (benodaine®) intravenously, the diastolic pressure rose to 160 mm. Hg, with a systolic pressure controlled by the above-mentioned drugs at between 200 and 220 mm. Hg. The diastolic pressure was not controlled until a spinal anesthetic, hypobaric dibucaine (nupercaine®) was administered. It then dropped to between 110 and 120 mm. Hg.

The pressure variations secondary to manipulation of the tumor and its removal were easily controlled by the continuous use of intravenous drip solutions of benodaine® and norepinephrine (levophed®). Postoperatively, the norepinephrine solution was necessary to support the blood pressure for approximately 36 hours. Thus the combination of spinal anesthesia with the short acting adrenergic blocking agents seemed successful in controlling the paroxysms of hypertension. Preoperatively, the tumor was successfully stimulated by exercise, histamine, and methacholine (mecholyl®) bromide. The first two procedures were successful in breaking through the relative hypotension induced by regitine.® It would seem probable that ether in this case acted as a dangerous stimulant or provocative agent to the tumor in breaking through the control by regitine® and benodaine.® These facts seem of sufficient importance to warrant early communication.

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## COARCTATION OF THE AORTA

*To the Editor:*—The interesting report by Dr. Raymond A. Sokolov, of Detroit (*J. A. M. A.* **148**:641-642 [Feb. 23] 1952) of a case of coarctation of the aorta with surgical correction at age 40, the case of a man aged 41 successfully surgically treated by Dr. Blalock (Gross, R. E.: *J. A. M. A.* **139**:285 [Jan. 29] 1949), and the first successful case reported by C. Crafoord and G. Nylin (*J. Thoracic Surg.* **14**:347, 1945) lead me to mention at this time the early cases reported by G. B. Morgagni (De sedibus et causis, 1761) and Dr. Paris (*J. de chir. de Desault* **2**:107-110, 1791), whose female patient was about 52 years old. Discovery of a markedly coarctated aorta was demonstrated at the time he was injecting the body for dissection, and Laennec (1781-1826), who had seen several cases, referred to four other cases of marked obliteration of the aorta recorded in the literature by Ashly Cooper, John Bell, and Graham (Mediate Auscultation, translated by Forbes, ed. 3, 1832, p. 686). However, the oldest proved case of (nearly) complete obliteration of the aorta recorded in medical literature, with illustration of the "specimen" (diagrammatic), I found to be the case of a man aged 92 years, reported by Dr. A. Reynaud in 1828, nearly 125 years ago (Observation d'une oblitération presque complète de l'aorte, *J. hebd. de méd., Par.* **1**:161-175, 1828). Craigie in 1841 collected 10 cases; Peacock in 1866 collected 46 cases. It is of further interest that L. M. Bonnet in 1903 analyzed a total of 160 cases. It was Bonnet who divided coarctated aortas into (1) the infantile or developmental type with usually a diffuse narrowing at the isthmus and (2) the adult type with a sudden constriction at the site of the ductus, due to postnatal cicatricial contraction (*Rev. de méd., Par.*, **23**:*108, 1903*). Corvisart, Leroux, and Boyer recorded a case of coarctation of the aorta in a man past 40 years (*J. de méd., chir., pharm., etc., Par.*, **33**, 1815). Finally, in 1827 Meckel, perhaps for the first time, showed rib erosion in a case of coarctation and rupture of the right auricle. This observation has been confirmed by x-ray studies by Hugo Rösler (1928), now of Philadelphia (*Wien. Arch. f. inn. Med.* **15**:521-538, 1928). In this article, rib erosion in one case was given passing notice. Railsback and Dock (*Radiology* **12**:58-61, 1929) and many others since 1929 have also confirmed this observation. Jordan (1830), Craigie (1841), Walshe (1873), and Byrom Bramwell (Diseases of the Heart and Thoracic Aorta, Edinburgh, 1884) observed erosion of the ribs. D. Evan Bedford (at a meeting of the Cardiac Club in 1930) and W. Dock (Erosion of Ribs in Coarctation of Aorta: Note on History of Pathognomonic Sign, *Brit. Heart J.* **10**:148-149, 1948) observed rib erosion with coarctation of the aorta. In 1835, Legrand clinically diagnosed obstruction of the thoracic aorta; and Oppolzer, in 1848, made probably the first clinical diagnosis of stenosis of the aorta at the ductus (Hamernjk, cited by Flexner, J.: Coarctation of Aorta [Adult Type]: Clinical and Experimental Studies, *Am. Heart J.* **11**:572-580, 1936).

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## WARFARIN FOR SUICIDE

*To the Editor:*—I read with interest the article "Suicide Attempt with Warfarin, a Bishydroxycoumarin-Like Rodenticide," which appeared in the March 15, 1952, issue of THE JOURNAL. The authors were Lt. Roy W. Holmes and Capt. Julian Lowe.

I would like to report a somewhat similar experience that I had in February, 1952, as follows. I was called to the residence of J. L. H., a young white man. The story was that he had become despondent, because his young bride of a few weeks had left him, and he went to a drugstore and asked for "rat poison." He was sold a package of "warfarat," made by Dr. Hess & Clark, Inc., Ashland, Ohio. The label on the package indicated that it contained bishydroxycoumarin (dicumarol®) and gave instructions as to the antidote. The patient stated that he took a "heaping tablespoonful" in a glass of water about one hour before his family called me. When I arrived, he had no complaints and the physical examination was essentially negative. His prothrombin time and activity were within the normal range. I had him drink several large glasses of warm soda water, which caused copious vomiting. I then gave him twelve 5 grain (0.32 gm.) tablets of vitamin K at one dose and instructed him to take two such tablets every four hours for the next 24 hours. The next day, he still had no complaints; his prothrombin time and activity were again normal, and I dismissed him.

I agree with the authors of the above-quoted article that warfarin is an excellent rat poison, but that a one-dose episode would not be lethal for a human.

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# BUREAU OF LEGAL MEDICINE AND LEGISLATION

## MEDICOLEGAL ABSTRACTS

**Chiropractic: Applicant Must Obtain Preliminary Education In Proper Sequence.**—The petitioner filed a mandamus action to compel the medical licensing board of West Virginia to permit him to take the examination for a license to practice chiropractic in the state. The case was heard by the Supreme Court of Appeals of West Virginia.

The West Virginia statutes provide: "Any person wishing to practice chiropractic in this State shall apply to the secretary of the medical licensing board for a license so to practice. Each applicant shall be a graduate of a chiropractic school or college recognized by the American Chiropractic Association, or other recognized national chiropractic society, which teaches a resident course of at least three calendar years of eight months each and requires active attendance upon the same, and shall be a graduate of an accredited high school giving a four-year course or have an education equivalent to the same, and shall have attended for at least two years an academic college equal in standing to the West Virginia University, as preliminary education."

The petitioner attended Marshall College at Huntington, West Virginia, during the academic years 1944-1945 and 1945-1946 and received 46½ hours college credit; he then received an additional 8 hours college credit for the time he served in the United States Navy; he then attended and was graduated from a chiropractic college recognized by the American Chiropractic Association; thereafter, during the academic year 1950-1951 he again attended Marshall College and received an additional credit of 15 hours. Upon applying to the medical licensing board for permission to take the examination for a license to practice chiropractic, the petitioner was advised that he was not eligible to take the examination for the reason that the 15 hours' credit obtained at Marshall College during the academic year 1950-1951, was after he had received his chiropractic training.

It appeared that there has been an unbroken administrative interpretation of long standing by the chiropractic board of examiners and its successor, the present medical licensing board, interpreting the West Virginia law concerning the qualifications prerequisite to the taking of the chiropractic examination to mean that an applicant must show that he has completed at least wo years of academic college work prior to and as preliminary cation to taking the graduate course at a chiropractic school college; that this long established interpretation by the board s "consonant with the public policy in this state and the high standards necessary to protect the public requiring applicants for examinations for particular professions to first complete a minimum of undergraduate or academic college training or high school training as preliminary training prior to taking graduate training in a particular professional school. . . ." The basic question in this case, said the Supreme Court of Appeals, is whether a writ of mandamus should issue to compel the medical licensing board to allow the petitioner to take the examination in view of the fact that he had the necessary high school, college, and professional credits, although a necessary part of his academic college credits were obtained after his graduation from a chiropractic college.

From a careful consideration of the language employed in the statute, said the court, we are of opinion that graduation from high school or the equivalent thereof, and attendance at an academic college equal in standing to West Virgnia University must precede attendance at a chiropractic school or college. In reaching this decision, we are supported to a large extent by the fact that there has been an unbroken administrative interpretation of long standing by the chiropractic board of examiners and its successor, the medical licensing board, that the statute provides that a high school and academic college education shall be had before attendance at and graduation from an accredited chiropractic school. "A contemporary exposition of a statute, uncertain in its meaning, recognized and acquiesced in for a long period of time by the officers charged with the duty of enforcing it, the courts, the Legislature, and the people, will be adopted unless it is manifestly wrong." We hold, the court concluded, that the medical licensing board, in refusing the petitioner admission to the examination for a license to practice chiropractic on the basis of its interpretation of the statute, was correct. Accordingly the petition for a writ of mandamus was denied. *State ex rel Ballard v. Vest, 65 S. E. (2d) 649 (West Virginia 1951).*

**Medical Practice Acts: Revocation of License; Advertising.**—The State Board of Medical Examiners revoked the defendant's license for unprofessional conduct and the defendant appealed to the Supreme Court of Oklahoma.

The Oklahoma statute permits the revocation of a physician's license for "all advertising of medical business in which statements are made which are grossly untrue or improbable and calculated to mislead the public." The advertisement used by the defendant contained the following: "Complete Examination including Fluoroscopic of the Respiratory System, Mouth, Throat, Sinuses, Heart, Spinal and Nervous System, Abdomen, Kidneys, Pelvis and Rectum, Blood Pressure and Urinalysis Test. Hemorrhoids (Piles) Treated Tonsils Removed. . . ."

In construing a similar provision in a prior law relating to the revocation of a physician's license for unprofessional conduct, the Supreme Court of Oklahoma said ". . . As we regard this section of our statute, we think that it is not aimed at any unethical practices of physicians as interpreted by the medical fraternity, but was aimed to prevent acts on the part of physicians which are universally regarded as immoral and against good conscience, not only by the medical profession, but by laymen as well, and for which under the style of obtaining money under false pretenses our Criminal Code has provided the penalties of the law."

The only witness produced on the question of the use of the word "fluoroscopic" was a specialist in the field of radiology. He testified that while the fluoroscope was useful in the examination of some, if not most, of the organs or parts of the body listed in the advertisement, it was of little or no assistance in examining the kidneys, and of no assistance in examination of the mouth. He admitted that the advertisement was ambiguous and that he was unable to determine to what extent it represented that the fluoroscope would be used. He testified that in the examination of some of the other organs or parts of the body listed, such as the spinal and nervous systems and the abdomen, the fluoroscope had a limited field. The whole extent of the radiologist's testimony was to establish that its use, as to some of the organs or parts of the body listed, was of no practical value in examining them. No witness testified to having been misled by the advertisement, nor did any witness testify that the fluoroscope could not be used in the examination of the various organs.

It is to be noted, said the Supreme Court, that the advertisement nowhere asserts that the fluoroscopic examination of the various organs mentioned therein is superior to any other form of examination, or gives any assurance of any extraordinary results to be produced thereby, nor did the evidence show that any of the statements were untrue, or that by reason thereof any members of the public had been, or probably would be, misled to their injury, and we are unable to say from an inspection of the advertisement that it would necessarily have such effect. The Supreme Court concluded that while the advertisement may be unethical practice from the viewpoint of the medical fraternity, it does not violate the statute according to the construction placed upon it in the prior decision. Accordingly the order revoking the defendant's license was reversed. *Choate v. State, 232 P. (2d) 634 (Oklahoma 1951).*

# MEDICAL LITERATURE ABSTRACTS

## UNITED STATES

### A.M.A. Am. Journal Diseases Child., Chicago

83:1-150 (Jan.) 1952

Use of Wetting Agents in Treatment of Respiratory Infections of Infants. G. C. Hall Jr.—p. 1.
Importance of Rest in Treatment of Early Convalescent Poliomyelitis. W. Green.—p. 4.
Prophylactic Immunization and Poliomyelitis. J. Lieben.—p. 8.
*Fanconi Syndrome: Multiple Congenital Anomalies with Hypoplastic Anemia. H. K. Silver, W. C. Blair and C. H. Kempe.—p. 14.
*Gamma Globulin Studies in Tuberculosis in Children. B. M. Levin, H. Kaufman and J. de la Huerga.—p. 26.
Community Study of Rheumatic Fever. H. A. Joos and C. P. Katsampes. —p. 37.
Factors to Be Considered in Planning a Premature Center. H. M. Wallace, M. A. Losty and L. Baumgartner.—p. 54.

**Fanconi's Syndrome.**—Fanconi's syndrome is an unusual combination of disorders that includes severe progressive refractory macrocytic anemia with pancytopenia (anemia, neutropenia, and thrombocytopenia), a hypoplastic bone marrow, and a generalized brown, melanin-like pigmentation of the skin, associated with various congenital defects. The defects often include microcephaly, bone abnormalities (particularly of the forearms and thumbs), hypogenitalism, genitourinary tract abnormalities, strabismus, and in at least one case, unilateral deafness, gynecomastia, and congenital heart disease. Fanconi first described this syndrome in 1927 in three brothers, each of whom died of an aplastic-type of anemia. Silver and associates report a case of Fanconi's syndrome in a girl, first admitted to their hospital in January, 1949, at the age of 11. She had anemia, thrombocytopenia, congenital abnormalities of the skeletal system, microcephaly, microphthalmos, a generalized olive-brown pigmentation of the skin, and enlarged breasts. The girl was hospitalized many times. Whole blood transfusions proved to be the only effective means of therapy, but were only of temporary value, and splenectomy was without apparent benefit. The occurrence of leukocytosis under the stimulus of multiple staphylococcic infections of face, buttocks, cervical nodes, and lungs was of particular interest. The girl died in November, 1950. The observations at necropsy are described in detail. The pathogenesis of the hematological changes observed is not entirely clear. The hypoplastic marrow and pancytopenia are similar to those found in aplastic anemia. However, the elevated reticulocyte count seen early in many cases of Fanconi's syndrome, and the marked anisocytosis and poikilocytosis, which have usually been noted, differ from the picture of normal red cells and decreased reticulocyte count usually seen in cases of aplastic anemia of either the primary idiopathic or the secondary type. Serial bone marrow examinations suggest that the inability of the marrow to produce red cells is progressive. This is substantiated by the concomitant reduction in the number of reticulocytes in the peripheral blood.

**Gamma Globulin Studies in Tuberculous Children.**—Antibodies for most diseases, including tuberculosis, have been found in the gamma globulin fraction. A recently described turbidimetric method for the determination of the gamma globulin produces results that correspond closely to results of the more complex electrophoretic determinations. Using this quick method serum gamma globulin levels were determined weekly for from three to eight months in 73 children with various types of tuberculosis to ascertain whether or not the levels followed any particular pattern during the course of tuberculosis. Sedimentation rates, hematocrit readings, and total and differential white cell counts were determined concurrently to see what relationships, if any, there are among results of these tests in tuberculosis. The gamma globulin level was greater than normal levels fairly early in tuberculosis. In uncomplicated primary pulmonary tuberculosis and in tuberculosis with effusion, peak elevations of gamma globulin were reached at about the sixth week, with return to normal values by about the 20th week. This paralleled the course of the sedimentation rate, but the latter rose a little earlier and returned to normal earlier. In reinfection tuberculosis the high levels of gamma globulin were maintained longer, probably owing to the fact that the disease remained active longer in these cases. The highest levels were maintained for the longest periods in tuberculous adenitis. This agrees with the theory that gamma globulin is a product of the reticuloendothelial system, as lymph nodes are made up largely of reticuloendothelial elements. Patients with bone tuberculosis had the lowest gamma globulin levels. In cases of miliary tuberculosis without meningitis the levels were very high. This may indicate a good antibody response, and may explain how these patients avoided meningitis. Patients with tuberculous meningitis had initial rises in gamma globulin, but there was no correlation between the gamma globulin and erythrocyte sedimentation rates just before the onset of the meningitis and just before death, when the gamma globulin level fell rapidly. The serum gamma globulin level, when followed serially and in conjunction with the sedimentation rate, is a valuable index of prognosis. A falling gamma globulin occurring with a rising sedimentation rate is a bad prognostic sign, indicating decreased body resistance and/or increased disease activity. A single gamma globulin determination is of no prognostic significance.

### A.M.A. Arch. Dermat. and Syphilol., Chicago

65:1-122 (Jan.) 1952

Boundaries of Dermatology: Presidential Address. H. E. Michelson.—p. 1.
Pregnancy and Apocrine Gland Diseases: Hidradenitis, Fox-Fordyce Disease. T. Cornbleet.—p. 12.
Dermatology in Egypt. G. R. Mikhail and M. S. Falk.—p. 20.
Clinical Study of "Quotane": New Antipruritic Drug. F. W. Lynch and O. E. Ockuly.—p. 35.
*Intravenous Use of Procaine Hydrochloride in Control of Pruritus. L. G. Beinhauer, G. J. Thomas and S. R. Perrin.—p. 39.
Circle Strobe Lighting in Medical Photography. D. J. McNairy and S. R. Mercer.—p. 45.
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Keloid Resulting from Positive Patch Test. J. E. Dalton.—p. 53.
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Lepra Reaction: Its Treatment with Dihydrostreptomycin. B. Saenz. —p. 59.
Serum Lipoproteins and Cholesterol Metabolism in Xanthelasma. N. N. Epstein, R. H. Rosenman and J. W. Gofman.—p. 70.
Koebner Phenomenon in Lichen Nitidus: Report of Two Cases. H. Pinkus and H. M. Shair.—p. 82.
Xanthoma Disseminatum: Unusual form with Extension of Xanthomatous Changes into Muscle. S. B. Frank and A. I. Weidman.—p. 88.

**Procaine Hydrochloride Given Intravenously in Pruritus.**—Procaine hydrochloride was given intravenously to 181 patients with pruritus. The majority had been treated with other methods without being relieved. A dose of 500 cc. of a 0.1 to 0.2% solution of procaine hydrochloride in isotonic sodium chloride solution was best tolerated when given over a period of 60 to 90 minutes. Barbiturate medication was given one hour before injection, and 200 mg. of ascorbic acid was added to each infusion to increase the resistance against toxic side-effects and to benefit patients with poor nutrition. When edema was present, 5% dextrose was added. In patients with nervous irritability and fear of the infusion thiopental (pentothal®) sodium in doses of 200 to

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Titles marked with an asterisk (*) are abstracted.

300 mg. added to the first two or three injections relieved the pruritus and allowed the patient to sleep. This modified treatment proved particularly effective in generalized neurodermatitis. Most patients were given one injection daily, and it was learned that, if pruritus was not relieved within six days, further therapy was generally useless. Most patients who reacted favorably were relieved after the fourth intravenous injection. The procaine hydrochloride injections produced complete relief in 59 patients, temporary relief in 67 patients, and no relief in 55 patients. When properly controlled, the treatment is safe, and can be tried when other therapies fail. The following are contraindications for this therapy: allergy to procaine, myasthenia gravis, thyrotoxicosis, and treatment with digitalis or digitalis-like drugs.

## A.M.A. Arch. Indust. Hyg. & Occup. Med., Chicago

### 5:1-96 (Jan.) 1952

*Treatment of Chronic Pulmonary Disease with Intermittent Positive Pressure Breathing: I. Evaluation by Objective Physiological Measurements. H. L. Motley and J. F. Tomashefski.—p. 1.
Tetryl Toxicity: Summary of 10 Years' Experience. B. B. Bergman.—p. 10.
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Effects of Dimethyl and Diethyl Paranitrophenyl Thiophosphate on Experimental Animals. W. B. Deichmann, W. Pugliese and J. Cassidy.—p. 44.
Physiological Response of Experimental Animals to Vapor of 2-Nitropropane. J. F. Treon and F. R. Dutra.—p. 52.
Spiral Sampler—New Tool for Studying Particulate Matter. C. D. Yaffe, A. D. Hosey and J. T. Chambers Jr.—p. 62.
Management of Older Employee with Medical Problems. R. B. Crain.—p. 71.

**Intermittent Positive Pressure Breathing in Chronic Pulmonary Disease.**—In 300 cases of silicosis maximal breathing capacity and vital capacity measurements were taken before and immediately after one intermittent positive pressure treatment combined with the simultaneous administration of a bronchodilator, a synthetic racemic epinephrine (vaponefrin®) hydrochloride solution, using a specially designed therapy unit. In 41 cases of silicosis similar determinations were made before and immediately after one treatment, and after a course of treatments given at the rate of three a day for two to three weeks. The number of treatments, the duration of single treatments, and the quantity of racemic epinephrine used were varied for each patient. All degrees of bronchial obstruction and decrease in lung elasticity were observed. In general the obstructive pattern was pronounced, but in most cases the increase in maximal breathing capacity noted after the treatment was interpreted as being due to relief of bronchospasm. Electrical recordings of instantaneous flow rates were made during maximal and deep breathing before and after one intermittent positive pressure breathing and bronchodilator treatment in one patient with asthma, one patient with chronic bronchitis, three patients with silicosis, and one patient with diffuse fibrosis following irradiation treatment. Tracings provided useful information concerning bronchospasm and elasticity changes in the lungs. The improved bronchial drainage, the more uniform distribution of aerosol to all parts of the lungs with consequent more effective relief of bronchospasm, and the improved muscle tone resulting from the breathing exercise are the most important results of this treatment, which appears promising in providing relief and control of symptoms in emphysema and fibrosis with dyspnea. It should be emphasized that this is not a cure in the sense that the normal condition of the lung is restored, but most of the patients were able to increase their activities after treatments. Maximal breathing capacity is the most significant and simplest objective measurement that can be correlated with subjective and clinical improvement.

## Delaware State Medical Journal, Wilmington

### 23:353-384 (Dec.) 1951

Acute Toxemias of Pregnancy. K. Vileisis.—p. 353.
Reactive Depression: Case Report. H. W. Geyer.—p. 355.
Artificial Triceps Action. G. J. Boines.—p. 357.

## Journal of Bacteriology, Baltimore

### 62:677-810 (Dec.) 1951. Partial Index

Isolation of Cryptococcus Neoformans from Soil. C. W. Emmons.—p. 685.
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Further Evidence of Existence of Mitochondria in Bacteria. S. Mudd, A. F. Brodie, L. C. Winterscheid and others.—p. 729.
Process of Hyaluronidase Formation by Hemolytic Streptococci. B. Sallman.—p. 741.
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Minimal Nutritional Requirements of Lactobacillus Bifidus. J. B. Hassinen, G. T. Durbin, R. M. Tomarelli and F. W. Bernhart.—p. 771.
Inhibition by Nitrate of Enzyme Formation During Growth of Escherichia Coli. D. Billen.—p. 793.

## Journal of Immunology, Baltimore

### 67:449-566 (Dec.) 1951

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Serological Response of Cotton Rats and Monkeys to Poliomyelitis Virus. M. Pollard.—p. 463.
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Micro-Test for Measuring Circulating Antibodies Against Virus (PVM). J. M. Smith and G. S. Mirick.—p. 539.
Concurrent Infection with Influenza A and B Viruses in Single Epidemic of Influenza. E. D. Kilbourne, H. C. Anderson and F. L. Horsfall Jr.—p. 547.

## J. of National Malaria Society, Columbia, S. C.

### 10:287-374 (Dec.) 1951. Partial Index

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## Journal of Thoracic Surgery, St. Louis

### 22:549-664 (Dec.) 1951

*Pneumonectomy for Severe Irradiation Damage of Lung. M. Bergmann and E. A. Graham.—p. 549.
Reconstructive Surgery of Trachea and Bronchi: Late Results with Dermal Grafts. P. W. Gebauer.—p. 568.
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*Analysis of Twenty-Seven Cases of Acute Cardiac Arrest. J. L. Ehrenhaft, D. W. Eastwood and L. E. Morris.—p. 592.
Cardiostathorrhaphy—Splinting Flaccid Myocardium of Coronary Occlusion by Surgical Procedures. D. S. Allen.—p. 609.
Use of Auricular Appendage as Autogenous Myocardial Graft. B. G. P. Shafiroff, H. C. Baron and Q. Y. Kau.—p. 631.
Traumatic Bronchial Rupture with Plastic Repair. D. L. Paulson.—p. 636.

**Pneumonectomy for Pulmonary Damage.**—Roentgen irradiation of the human chest is almost always carried out for the treatment of a malignant neoplasm. Such neoplasms may be intrathoracic, e. g., mediastinal lymphomas, esophageal carcinoma, or inoperable bronchiogenic carcinoma, but the commonest indication is carcinoma of the breast. Patients who receive roentgen therapy for breast cancer deserve special attention, not only because they constitute the largest single group but also because radiation in these cases is usually confined to one hemithorax and because their chances for long-term survival are better. To date the authors have performed a unilateral pneumonectomy in two patients, both of whom presented the typical clinical picture of irradiation damage of one lung. Cough and dyspnea were the chief complaints and were quite disabling. The radiographs of both patients were compatible with the diagnosis of radiation damage. In both cases pneumonectomy afforded marked relief, though in the first case empyema developed a long time after operation. The pathologic findings in these lungs are of interest because they represent the first human lungs with irradiation damage studied after surgical removal instead of post mortem. In both cases hyaline membranes, regarded as so constant in autopsy material, were absent. Since such membranes were not seen in experimental animals either, it is probable that this phenomenon is a terminal or agonal artifact. The authors believe that pneumonectomy should be employed in unilateral irradiation damage in cases in which the severity of the symptoms warrant such a procedure, and the history and examination suggest that the patient will survive for a reasonable length of time. No effective nonsurgical treatment of pulmonary irradiation damage is available.

**Acute Cardiac Arrest.**—Acute cardiac arrest may occur during minor surgical procedures. There exists no greater surgical emergency, and yet it is poorly understood by most surgeons. At the Iowa University Hospitals 25 instances of acute cardiac arrest occurred in approximately 71,000 anesthetic and operative procedures in a period of 10 years. Two additional cases that occurred in poliomyelitis patients are added to this group. There were no survivals among the 11 cases observed before 1947, when treatment consisted of intravenous or intracardiac injection of medications and artificial ventilation. In the second group of patients artificial circulation was employed and resulted in survival for various periods. The histories of the 16 patients in whom artificial circulation was employed are presented. The approach to the heart was transthoracic in most instances and transdiaphragmatic or transabdominal in a few cases. When cardiac arrest occurs, artificial ventilation with pure oxygen must be instituted immediately. Efforts of the surgical team must be directed toward reestablishing effective blood flow. The quickest approach by which manual compression of the heart can be effected should be used. Usually this will be a direct transthoracic approach. If, however, an abdominal incision already exists, transdiaphragmatic or transabdominal manipulation of the heart may be tried, but quickly changed to the transthoracic approach if adequate peripheral circulation does not appear. A palpable peripheral pulse and satisfactory blood pressures must be obtained. Adjuvant therapy may include the use of procaine intravenously, into the heart, or topically. This may reduce the irritability of the myocardium and danger of ventricular fibrillation. In the event that ventricular fibrillation does occur, electric shock with electrodes applied to each side of the heart should be used in an attempt to reverse the fibrillation. Epinephrine may have caused many deaths by producing ventricular fibrillation; if used, it should be given in small, very dilute quantities. A dosage of 0.1 mg. in 1:10,000 dilution has been observed to cause ventricular fibrillation. Under no circumstances should the content of the usual epinephrine ampoule be administered. If prolonged artificial circulation should be necessary, maintenance of the circulating blood volume may be necessary by intravenous or intra-arterial transfusions.

## New England Journal of Medicine, Boston

245:957-996 (Dec. 20) 1951

Subglottic Membrane: Complication of Endotracheal Intubation. B. Etsten and D. Mahler.—p. 957.
Effects of Pyromen Administered Intravenously in Subpyrexial Doses to Depressed Patients: Preliminary Study. E. M. J. Fitch and A. C. Washburne.—p. 961.
Antibiotic Synergism and Antagonism. E. Jawetz, J. B. Gunnison and R. S. Speck.—p. 966.
Multiple Myeloma: Report of Four Cases Demonstrating Bence-Jones Proteinemia Found During Routine Complement-Fixation Tests. F. C. Collier, A. Reich and J. W. King.—p. 969.
ACTH and Cortisone in Treatment of Ocular Disease. R. W. Smith Jr. and E. H. Steffensen.—p. 972.

## New York State Journal of Medicine, New York

51:2807-2948 (Dec. 15) 1951

Birth Trauma to Proximal Femur. G. J. Baron, N. Egel and F. N. Zuck. —p. 2859.
Cineangiocardiography as Diagnostic Aid in Congenital Heart Disease. R. S. Meltzer, J. S. Watson, E. S. Olsan and S. Weinberg.—p. 2865.
Postural Abnormalities of Spine and Lower Extremities in Young Children. M. B. Howorth.—p. 2868.
Metabolic Aspects of Steroid Therapy in Rheumatic Disease of Children. R. A. Higgons and A. A. Albanese.—p. 2875.
Iodinated Organic Compounds as Contrast Media for Radiographic Diagnoses: XIV. Influence of Pancreatic Function on Cholecystography. M. Radakovich, V. W. Logan, R. H. Greenlaw and others.—p. 2880.
Portal Hypertension. J. D. Stewart.—p. 2884.
Abdominal Trauma. F. G. Stoesser and R. E. Smith.—p. 2887.
Surgical Management of Obstructive Jaundice. C. E. Welch.—p. 2891.
Surgical Treatment of Hyperthyroidism. L. W. Sloan.—p. 2897.
New Method of Bone Plate Fixation. G. S. King.—p. 2903.
Prevention of Postspinal Headaches by Parenteral Hydration. W. M. Shaw.—p. 2905.
Mesenteric Thrombosis. S. B. Reich and L. Love.—p. 2909.
Treatment of Neurologic and Psychiatric Disorders Secondary to Arteriosclerosis: Preliminary Report. T. E. Bamford Jr.—p. 2913.

## Northwest Medicine, Seattle

51:1-92 (Jan.) 1952

Acute Hospital Bed Needs. L. E. Powers, B. M. Bennett and E. L. Turner.—p. 23.
Outline of Undesirable Effects of ACTH and Cortisone. J. L. Bakke. —p. 26.
What the Physician Should Know About Vocational Rehabilitation. L. M. Farner.—p. 30.
Fatigue. H. A. Dickel, H. H. Dixon, R. A. Coen and R. D. Peterson. —p. 32.
Surgical Management of Benign Intraductal Papilloma of Breast. J. L. Vadheim.—p. 35.

## Pediatrics, Springfield, Ill.

8:753-880 (Dec.) 1951

*Myositis Ossificans Progressiva. H. D. Riley Jr. and A. Christie.—p. 753.
Factors Affecting Prognosis of Tuberculous Meningitis Treated with Streptomycin. L. Finberg.—p. 768.
Hepatitis and Nephrosis Due to Soluble Bismuth. S. Karelitz and A. D. Freedman.—p. 772.
Influence of Diet on Occurrence of Hyperphosphatemia and Hypocalcemia in Newborn Infant. I. F. Gittleman and J. B. Pincus.—p. 778.
Hypervitaminosis A: Report of Unusual Case with Marked Craniotabes. J. M. Arena, P. Sarazen Jr. and G. J. Baylin.—p. 788.
Congenital Lobar Emphysema. R. Robertson and E. S. James.—p. 795.
Case of Adrenogenital Syndrome with Hypertension Treated with Cortisone. T. H. Shepard II and S. W. Clausen.—p. 805.
Serum Complement in Acute Glomerulonephritis and Nephrotic Syndrome. K. Lange, L. Slobody, F. Graig and others.—p. 814.
Crystalline Vitamin $B_{12}$ and Sodium Folvate in Prematurity. T. Mitchell, J. N. Etteldorf, A. H. Tuttle and G. W. Clayton Jr.—p. 821.
*Left Coronary Artery from Pulmonary Artery: Three Cases, One with Cardiac Tamponade. H. I. McKinley, J. Andrews and C. A. Neill. —p. 828.

**Myositis Ossificans Progressiva.**—The occurrence of myositis ossificans progressiva is reported in a boy, aged 15 months, and in three girls, aged 18 months, 16 years, and 12 years. At the onset of the disease the two latter patients were 2-months-old and 7-years-old, respectively. Clinical observations in these four patients proved that at the onset in typical cases palpable masses over the fascial planes of the head and neck will usually develop. Biopsy suggests that the masses are tumor tissue, but subsequently calcification and ossification occurs. The term myositis ossificans is inaccurate, since there is calcification of the connective tissue between the muscles rather than calcification of the muscles. When the disease progresses as it did in the authors' patients, they frequently present themselves with gait or posture disturbances or with other orthopedic complaints. Microdactylism was present in all four patients and hallux valgus in two. The disease progresses from inflammation, swelling, and induration of the muscles and connective tissue to tumefaction and calcification in two to eight months. Finally, the calcification progresses to ossification and severe crippling. Serial illustrations and roentgenograms on several of the authors' patients demonstrated these progressive changes. Results of all biochemical determinations were normal. Cortisone, 10 mg. at six hour intervals, was given a therapeutic trial in the male infant. After 10 days of treatment the patient had an improved range of motion in his formerly fixed neck and arms, and began to feed himself. Two days later he was able to walk with the aid of a toddler.

Prior to therapy with cortisone the patient had not been able to sit alone and had to be fed because of the ossification in his back and axillary folds. The patient's course was followed for 10 months, and with 10 mg. of cortisone daily he maintained his improvement with no lessening of the range of motion, but a new tumor developed in the lumbar region. Cortisone was also given to the 16-year-old girl who had had the disease since the age of 2 months, but it proved ineffective. The pronounced subjective improvement following cortisone therapy in one early case suggests that possibly myositis ossificans progressiva is related to disturbed steroid metabolism.

**Left Coronary Artery Arising from Pulmonary Artery.**—Origin of the left coronary artery from the pulmonary artery is reported in three infants, two boys aged 7½ weeks and 19½ weeks and a girl aged 16½ weeks, making a total of 35 cases of this anomaly reported in infants. Two of the authors' patients survived only a few hours after admission to hospital, but a correct diagnosis had been made when electrocardiograms were available before opening the heart. In the third case the diagnosis was made by reviewing the roentgenographic and electrocardiographic findings and a possible surgical approach was discussed but the patient died. Since eight cases of this anomaly have been reported in adults, one of whom lived to the age of 64, it is suggested that the life of the infant might be saved if the condition can be diagnosed before irreversible myocardial changes have occurred. In one of the authors' patients the condition was complicated by cardiac rupture, a complication not previously reported. In the authors' three patients, as well as in the majority of those reported by other workers, there was a recurrent symptom pattern. At birth the infants appear normal, but at an early age begin to show the strain of nursing and refuse to suck the breast. This is usually a cause for weaning, and may not be interpreted as a sign of exertional dyspnea. Since it is easier to suck from a bottle, on weaning dyspnea frequently disappears temporarily. Later it becomes progressive until frequently it is present at rest and in many cases causes an erroneous diagnosis of pneumonia. On clinical examination, cyanosis is usually absent except terminally, and prominence of the left chest may be the only sign. Since this suggests cardiac hypertrophy, roentgenograms should be taken, which will show cardiac enlargement, and in many cases this can be recognized as left ventricular enlargement. An electrocardiogram is essential for diagnosis and shows inverted T waves in leads 1 and 2, a low voltage curve, and variable left axis deviation. The ideal treatment, if vasodilator drugs fail, would seem to be a direct anastomosis of the left coronary artery with the aorta; since this is technically impossible at present, other methods of increasing the flow to the left coronary artery should be attempted. Gasul suggests the Pott's-Smith operation, which by raising the pulmonary pressure, might increase the left coronary flow.

## Psychiatry, Washington, D. C.

### 14:361-478 (Nov.) 1951. Partial Index

The Psychiatric Interview. H. S. Sullivan.—p. 361.
Sibling Rivalry and Social Heredity. J. R. Hilgard.—p. 375.
Data Concerning Certain Manifestations of Incorporation. H. F. Searles.—p. 397.
Comparison of Individual and Multiple Psychotherapy. J. Warkentin, N. L. Johnson and C. A. Whitaker.—p. 415.
Headache as Internalized Rage Reaction: Preliminary Report. S. L. Lustman.—p. 433.
Psychotherapeutic Principles in Social Research: Interdisciplinary Study of Hutterites. J. W. Eaton and R. J. Weil.—p. 439.

## Quarterly J. Studies Alcohol, New Haven, Conn.

### 12:563-710 (Dec.) 1951

Relationship Between Deficiency of B Vitamins and Alcohol Intake in Rats. J. Mardones.—p. 563.
Treatment of Alcoholism with Tetraethylthiuram Disulfide in a State Mental Hospital: Clinical Study Based on 43 Cases. I. A. Shaw.—p. 576.
New Adjuvant in Postalcoholic Psychomotor Agitation. M. D. Kissen, H. E. Yaskin, H. F. Robertson and D. R. Morgan.—p. 587.
Court Clinic for Alcoholics: Description and Evaluation of the Stoughton Clinic. M. Brunner-Orne, F. T. Iddings and J. Rodrigues.—p. 592.
Nonaddictive Pathological Drinking Patterns of Homeless Men. R. Straus and R. G. McCarthy.—p. 601.
Occupational Performance of Thirty Alcoholic Men. H. L. Hochwald.—p. 612.

## Radiology, Syracuse, N. Y.

### 57:797-962 (Dec.) 1951

"Single-Portal-Massive-Dose" X-Ray Therapy Technic for Certain Upper Respiratory Tract, Parotid Gland, and Recurrent Breast Cancers. M. Friedman and L. A. Davis.—p. 797.
*End-Results in Treatment of Ovarian Carcinoma with Surgery and Deep X-Ray Irradiation. H. E. Schmitz and J. T. Majewski.—p. 820.
Role of Surgery in Management of Cervical Carcinoma. H. E. Schmitz, J. E. Towne and C. J. Smith.—p. 826.
Hazard of Radiation. A. E. Heustis and D. Van Farowe.—p. 832.
*Steroids in Cancer of Breast. R. Rosh and G. G. Green.—p. 837.
Further Studies on Radiosensitivity of Analogous Mouse Mammary Tumors dbrB and C3H. A. Goldfeder.—p. 845.
Secondary Carcinoma of Phalanges. F. W. Brason, E. G. Eschner, S. Sanes and G. Milkey.—p. 864.
Primary Melanosarcoma of Esophagus. J. M. Burnett and E. St. John.—p. 868.
Roentgenologic Considerations in Tracheo-Esophageal Fistula Without Esophageal Atresia: Report of Two Cases. T. F. Leigh, O. A. Abbott and W. A. Hopkins.—p. 871.
Pantopaque Meningitis Due to Hypersensitivity. J. C. Luce, W. Leith and W. S. Burrage.—p. 878.
Adaptometer for Preparation for Fluoroscopy. F. A. Riebel and C. C. Carroll.—p. 882.
New Radiolaryngometric Method. C. E. Gárciga.—p. 884.

**Ovarian Carcinoma Treated by Surgery and Irradiation.**—Schmitz and Majewski analyzed the records of 143 patients with malignant ovarian neoplasms who were followed for at least five years at the Institute of Radiation Therapy at the Mercy Hospital in Chicago. Contact was lost with 13, who have been counted as deceased in the final tabulations. The onset of ovarian carcinoma is insidious. Abdominal swelling or the presence of a mass was the presenting symptom in 65%. It is estimated that three to six months will have elapsed before the most active of these growths produces recognizable abdominal enlargement, and at least 12 months before the less malignant tumors cause enlargement. By this time extension to the peritoneum and omentum has usually occurred, and the chances for survival are decreased. Other symptoms, such as leukorrhea, vaginal bleeding, or pressure signs, are usually disregarded by the patient. Frequent routine pelvic examination seems to offer the only means of early diagnosis. With surgical removal of the uterus, both tubes and ovaries, and the omentum, followed by intense roentgen irradiation of the pelvis, the five-year survival in this group was 20.28%. Eliminating cases in which complete surgical removal of the gross disease was impossible, the survival rate is about 50%.

**Steroids in Cancer of the Breast.**—Because of the effect of estrogens on breast cancer, Rosch and Green advocated castration of young women with breast cancer and have carried out this procedure in every possible instance. Castration, by x-ray or surgery, has produced a favorable effect on osseous metastases. After castration had its effect the authors resorted to the use of steroid hormones, chiefly androgens. Of the 50 women treated with androgens, three were also treated with estrogens. More than half of the patients showed subjective improvement, whereas only about a fourth showed objective improvement. The majority were given 100 mg. of testosterone propionate three times a week. One of three who were given only 25 mg. three times a week showed acceleration of metastases, which was controlled with 100 mg. three times a week. It was difficult to assess the relief obtained. In several instances, however, completely bedridden patients have become symptom-free and ambulatory. The authors combined steroids with radiation therapy, particularly in the presence of metastases in the long bones or weight-bearing areas. This study has not been in progress long enough to determine if there has been any change in longevity, although 20 of the patients were still alive at the time of writing. The majority who died did not show a favorable response to the initial course of steroid therapy. Steroids seemed to increase the length of life in those persons who demonstrated a definite objective response to combined steroid and x-ray therapy. In no instance was the disease cured by the administration of steroids alone.

## Rocky Mountain Medical Journal, Denver

### 49:1-90 (Jan.) 1952

YOU AND YOUR A. M. A.—SYMPOSIUM

The A. M. A. Begins at Home. G. A. Unfug.—p. 24.

We Know Your Congressman. F. E. Wilson.—p. 26.

Things Are Happening in Rural Health. F. A. Humphrey.—p. 28.

You Are the A. M. A. E. J. McCormick.—p. 30.

Medical Education, Specialty Practice and Family Doctor. W. Darley. —p. 35.

Thorn Test During Contisone Therapy. G. C. Krebs and J. H. Holmes. —p. 40.

Cerebral Contusion of Newborn. R. M. Stuck.—p. 44.

## Surgery, Gynecology and Obstetrics, Chicago

### 94:1-128 (Jan.) 1952

Combined Neck and Jaw Resection for Intraoral Carcinoma. W. W. Carroll.—p. 1.

Histopathology and Cytology of Cervix in Pregnancy. R. E. L. Nesbitt Jr. and L. M. Hellman.—p. 10.

Blood Volume in Pre-Eclampsia as Determined with P$^{32}$ Labelled Red Blood Cells. N. I. Berlin, G. M. Hyde, J. H. Lawrence and others. —p. 21.

Effect of Stimulation of Lower Intrathoracic Portion of Vagus Nerve on Cardiovascular System of Dogs. S. T. Chester, H. C. Naffziger, C. Fisher and others.—p. 23.

Pancreaticoduodenectomy with Resection of Portal Vein in Macaca Mulatta Monkey and in Man. C. G. Child III, G. R. Holswade, R. D. McClure Jr. and others.—p. 31.

Results of Radical Surgical Extirpation in Treatment of Carcinoma of Esophagus and Cardia: With Five Year Survival Statistics. R. H. Sweet.—p. 46.

Transduodenal Reconstruction of Bile Ducts. L. R. Dragstedt and E. R. Woodward.—p. 53.

Asphyxia by Tracheobronchial Secretions. N. Ende and J. Ziskind.—p. 57.

Myolymphangioplasty for Prevention and Relief of Swollen Arm: Preliminary Report. N. Treves.—p. 65.

*Cytologic Interpretation of Prostatic Smear. H. Peters and I. N. Frank. —p. 69.

Problem of Calyceal Diverticulum. H. R. Newman, R. M. Lowman and L. L. Waters.—p. 77.

*Aortography: Its Interpretation and Value; Report of 200 Cases. R. Leriche, P. Beaconsfield and C. Boëly.—p. 83.

Roentgenology and Pathology of Cyclic Disturbances in Breast: With Special Reference to Their Surgical Diagnosis. J. Gershon-Cohen and H. Ingleby.—p. 91.

Hyperthyroidism in Pregnancy. M. E. Dailey and R. C. Benson.—p. 103.

Analysis of 100 Cases of Squamous Cell Carcinoma of Esophagus: Part II. With Special Reference to Its Theoretical Curability. K. A. Merendino and V. H. Mark.—p. 110.

**Cytological Interpretation of Prostatic Smear.**—This paper is concerned with the cytological interpretation of prostatic secretions obtained from 616 patients with various urologic disorders, including 100 patients who had carcinoma of the prostate. In 46 of the 100 patients the carcinoma was confirmed by histological examination of sections and in the other 54 patients cancer was indicated by clinical observations, such as roentgenologic evidence of metastases or elevated phosphatase values. Malignant cells were present in the prostatic smear of 88 of the 100 patients with carcinoma. Two of the 12 patients whose prostatic secretion smears failed to show malignant cells had been treated successfully with estrogen for several years. Malignant cells were reported to be present in two patients who on histological section proved to have benign prostatic hypertrophy. The finding of cancer cells in the smears of five patients led to the correct diagnosis earlier than would have otherwise been possible. In these cases the cytological investigation was of immeasurable help to the clinician and patient. The results of this survey show that cancer of the prostate desquamates cells sufficiently characteristic to be recognized microscopically. However, failure to find cancer cells in the smear does not exclude the presence of a malignant tumor. Adequate prostatic massage is essential for this study. A very hard prostate may fail to yield secretion on massage, and in other cases the gland may prove too tender to make adequate massage tolerable. If these mechanical obstacles are taken into consideration, the "false negative" report will become rare. The reliability of the cytological interpretation increases with the experience of the interpreter.

**Evaluation of Aortography.**—Many consider aortography a useful and safe method of investigation in selected cases which present diagnostic and therapeutic problems; some—fearing the needle puncture of the aorta—are unwilling to adopt this approach. Those who criticize aortography claim that the information obtained does not warrant the risks involved in this procedure. Of 2,000 patients with peripheral vascular disease observed by Leriche and associates during the last two years 190 were subjected to aortography. In addition to these, they performed 10 aortographies for conditions other than peripheral vascular disease. They feel that aortography is a procedure that may be carried out without risk to the patient, but its practical applications and values are limited. It is useful in a small group of patients with suspected abdominal or retroperitoneal tumors, in whom diagnosis is impossible to make by other simpler methods of investigation. In this group of patients with relatively normal arterial walls, aortography is done by the retrograde catheter method. In peripheral vascular disease, aortography should only be employed if resection or reconstructive surgery of the vascular lesion is to be considered. Here, the translumbar puncture of the aorta is the method of choice.

## Urologic & Cutaneous Review, West Palm Beach, Fla.

### 55:715-780 (Dec.) 1951

*Genito-Urinary Tuberculosis. H. L. Kretschmer.—p. 715.

Nephrolithotomy for Staghorn Calculi. E. A. Brady Jr.—p. 724.

Myomatous Tumors of Kidney. S. Petkovic.—p. 730.

Patent Urachus. F. A. Lloyd and D. Pranke.—p. 734.

Some Newer Aspects of Analysis of Semen (Insemination Implication). R. D. Herrold.—p. 738.

Giant Hydronephrosis on Left Side of Horseshoe Kidney. H. J. Meisel and J. M. Miller.—p. 739.

Liposarcoma of Kidney. L. Brady and G. Wayburn.—p. 741.

Cavernous Hemangioma of Scrotum: Report of Case. W. Baurys and W. A. Morton Jr.—p. 744.

**Genitourinary Tuberculosis.**—Renal tuberculosis may produce no symptoms until the lesion is far advanced. Bladder symptoms predominate in most cases. Cystitis that does not respond to treatment, especially in young persons, should suggest the possibility of urinary tuberculosis. The diagnosis is based on demonstration of pus and tubercle bacilli in urine obtained by catheterization. Renal tuberculosis as seen by the urologist never heals, and necessitates nephrectomy. Improvement produced by streptomycin may be due to its effect on secondary bacterial invaders and not on the tuberculous process itself. Nephrectomy removes a large focus of tuberculosis, hence increases resistance and may delay the progress in the opposite kidney. Views on nephrectomy in bilateral renal tuberculosis have changed. The author generally refrains from nephrectomy in these cases, but when one of the two kidneys becomes acutely infected and the patient shows symptoms of sepsis, i. e., chills, fever, and sweats, nephrectomy is indicated. Tuberculosis of the bladder is never primary and must be considered with that of the kidney. The onset of genital tuberculosis is slow and insidious. Enlargement of the epididymis prompts the patient to consult his physician. A history of a slow painless growth, the presence of nodules in the epididymis, thickening and beading of the vas deferens, nodules and thickening of the prostate and seminal vesicles, and a previous abscess with the presence of a fistula or scar in the scrotum establish the diagnosis. The presence of a large amount of hydrocele fluid or extensive involvement of the epididymis with adhesions may cause difficulty in determining the condition of the testicle, but involvement of the testes is rare, and occurs late in the course of the disease. The patient should be operated upon as soon as the diagnosis of genital tuberculosis has been established, and as much tuberculous tissue as possible should be removed. The author sees no reason for a long course of preparatory treatment, pointing out that with local anesthetics or thiopental (pentothal®) sodium, the patient can be operated upon safely, even in the presence of active pulmonary tuberculosis. The conservative operation carried out most frequently is epididymovasectomy. As much of the vas deferens as possible should be removed, and the end of the vas should be cauterized with pure phenol. The radical operation consists of removal of the seminal vesicles, part of the prostate, the vasa, and both epididymides. Many urologists feel, however, that the excellent results obtained by conservative surgical methods do not justify the radical procedure.

# FOREIGN

## Archiv für Kinderheilkunde, Stuttgart

143:113-160 (No. 3) 1951

*Congenital Malaria. E. A. Voss.—p. 113.
Clinical Aspects of Dextroposition of Aorta During Childhood. H. Weyers.—p. 120.
Early Diagnosis of "Isolated" Tricuspid Atresia. G. Schaper.—p. 133.
Therapeutic Use of Pantothenic Acid in Children. W. Ehrengut.—p. 140.

**Congenital Malaria.**—Congenital malaria can be proved only when a mother who has malaria gives birth to a malarial child in a region where there are no Anopheles mosquitoes. Voss presents two cases of malaria that he believes can be classified as congenital and cites reports from the literature. Intrauterine infection of the fetus has been demonstrated repeatedly, but its mechanism has not been explained. The intact placenta acts as a filter, and plasmodial parasites that circulate in the blood cannot enter the tissues. It has been suggested that traumatic lesions of the placenta might be produced by malarial chills and other causes. The hemorrhagic tendency of malaria patients supports this assumption. The author believes that nonviability usually results in cases of intrauterine infection, and that, in infants born alive, infection generally takes place during delivery. Symptoms of malaria usually appear after a latent period of not less than seven days. Congenital malaria behaves like an inoculation malaria in that a single course of quinacrine is adequate for cure, supplementary treatment with pamaquine being unnecessary.

## British Journal of Venereal Diseases, London

27:173-220 (Dec.) 1951. **Partial Index**

Serological Diagnosis of Lymphogranuloma Venereum. A. D. Macrae. —p. 183.
Serological Investigation for Treponemal Infection of Artisan Recruits in South Persia. R. Hodgson and I. S. Stewart.—p. 188.
Parallel Serum Testing with V. D. R. L. Slide Test, Meinicke Slide Test, and Price Precipitation Reaction. B. Singh and M. D. Sharma.—p. 190.
Parallel Testing with Crude Heart Extract Wassermann Antigens. I. N. O. Price and A. E. Wilkinson.—p. 191.
Case for Diagnosis with Note on Infantile Cortical Hyperostosis (Caffey's Syndrome). E. M. C. Dunlop.—p. 194.
Note on Use of Stuart's Transport Medium for Isolation of Gonococcus. A. E. Wilkinson.—p. 200.

## British Medical Journal, London

1:1-58 (Jan. 5) 1952

Tissue Reactions to Protein Sensitization. J. R. Squire.—p. 1.
*Dental Disease Among 14-Year-Old London School-Children in 1947 and 1950. M. Mellanby and H. Mellanby.—p. 7.
Intestinal Macrocytic Anaemia. G. M. Watson and L. J. Witts.—p. 13.
Effect on Bleeding-Time of Extract of Blood of Patients with Rheumatoid Arthritis. R. Greene, J. Vaughan-Morgan and J. Gammon.—p. 17.
*Sterilization of Woolen Fabrics. H. F. Barnard.—p. 21.
Bacteriology of Vaginal Flora After Use of Internal Tampons. E. N. Brand.—p. 24.
T-Piece Technique for General Inhalational Anaesthesia: Safe Method of Reducing Operative Bleeding. J. Bullough.—p. 28.

**Dental Disease Among 14-Year-Old Children.**—Two surveys of 14-year-old London school children are reported. The inspections were made with a probe and mirror. The proportion of children found to be free from caries, according to the standards used, was 11.5% in 1947 and 16.1% in 1950. A total of 14.6% of the teeth in 1947 were carious, whereas for 1950 the figure was 13.9%. Only small differences were found between the two surveys as regards the amount of caries in the different types of teeth. The amount of treatment (fillings and extractions) that the teeth had received is briefly considered. An over-all reduction of 5% was noted in 1950 as compared with 1947. Some degree of gingivitis was found to occur in 73.7% of the children examined in 1947 and in 95.1% of those seen in 1950. Tartar deposits were frequently found, and there appeared to be some relation between the amount of tartar and the incidence and extent of gingivitis.

**Sterilization of Woolen Fabrics.**—For some years efforts have been made to reduce cross infections in hospitals, most of which are caused by Staphylococcus aureus. Periodical checking of the staff has shown that about 50% are nasal carriers of this organism. However, phage-typing of the organisms recovered from patients and staff cast doubt on the direct nurse-to-patient route of spread. Therefore, when the majority of freshly laundered blankets were found to contain Staph. aureus, methods of chemical sterilization were investigated. Effective concentrations of the detergent cetyl pyridinum bromide (also known as "fixanol C") were determined. The detergent on the dried blanket readily passes again into solution on contact with moisture. With a 1 in 6,400 dry concentration, the blanket leaves the laundry virtually sterile. Moreover, it apparently retains for a considerable period sufficient material to destroy any staphylococci that may be picked up in secretions. The impregnated blankets have a slightly smooth feel and no smell, and in routine hospital use of all blankets for a year there has been no indication of sensitivity of patients to the treated blankets. However, after the hospital blankets had been sterilized for three months, a certain amount of cross infection still continued, apparently from other sources.

## Canadian Medical Association Journal, Montreal

66:1-94 (Jan.) 1952

Anxiety: Damage and Repair. D. E. Cameron.—p. 1.
Value of Aureomycin in Prevention of Cross Infection in Hospital for Sick Children. C. E. Snelling and R. Johnson.—p. 6.
Treatment of Dehydration in Infancy Using Continuous Interstitials and Hyaluronidase. A. M. Goodfellow, R. Pocock and J. F. McCreary. —p. 8.
Thiamin Therapy in Neuro-Psychiatry. I. Gregory.—p. 12.
Chloromycetin in Treatment of Mumps. G. Nickerson and E. M. Worden. —p. 17.
Our Present Knowledge of Potassium in Physiological and Pathological Processes. J. W. Stephens.—p. 19.
Spinal Analgesia with Hypobaric Pontocaine for Caesarean Section. R. A. Chaplin.—p. 32.
Unilateral Renal Agenesia. W. P. Hogarth.—p. 34.
Pain About Radial Styloid. A. C. Walsh and G. E. Miller.—p. 36.
Keratosis of Larynx with Progression to Malignancy. A. A. Grossman and W. H. Mathews.—p. 39.
Invasive Hydatidiform Mole. A. Gaum.—p. 42.
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Prevention in Control of Glaucoma. H. Pichette and J. Audet.—p. 48.
Eosinophil Level in Psychiatric Conditions. A. Mann and H. Lehmann. —p. 52.
Primary Amyloidosis Simulating Cirrhosis of Liver. W. Graham.—p. 58.
ACTH and Cortisone Therapy in Eye Disease. H. L. Ormsby, S. Y. Shirley, J. F. Aikenhead and R. G. Murray.—p. 62.

## Klinische Wochenschrift, Heidelberg

30:1-48 (Jan. 1) 1952. **Partial Index**

*Are Nicotinic Acid Preparations Effective in Treatment of Peripheral Circulatory Disturbances? W. Schulze.—p. 8.
Oxidation of Anomeric Sugars. G. Malyoth and H. W. Stein.—p. 14.
*Cyclical Changes in Sizes of Nuclei in Vaginal Smears. H. Malsch and A. Schmitt.—p. 15.
*Counting Thrombocytes Under Fluorescent Light. W. Kosenow.—p. 18.
Electrical Charge and Isoelectric Point of Blood Cells: Relation to Cellular Function. E. Fritze and P. Doering.—p. 19.
Problems of Determination of Prothrombin. P. Arnolds and E. Erlemann. —p. 22.
Modification of Blood Coagulation by Streptomycin, *p*-Aminosalicylic Acid and Thiosemicarbazone. G. Walther and K. A. Winter.—p. 25.
Radioactive Phosphorus in Therapy on Polycythemia Vera. H. Goldeck, H. Groth and W. Horst.—p. 28.
Pathogenesis of Hyperglobinemic Purpura. F. E. Schmengler and H. Esser.—p. 30.

**Nicotinic Acid and Circulation in Extremities.**—Schulze believes that nicotinic acid stimulates the peripheral circulation only in the head and the upper part of the body including the proximal portion of the extremities. However, some clinicians think that circulation in the ends of the extremities is also stimulated by nicotinic acid, and that therefore this acid and its derivatives may be used in treatment of impaired circulation in the fingers or toes. Schulze measured the skin temperature of fingers and toes under conditions that would disclose vasoconstriction as well as vasodilatation. His experiments revealed that, whether nicotinic acid or its derivatives were given intravenously, intramuscularly or orally, they did not increase the blood perfusion of fingers or toes. On the contrary, the finger temperature often decreased in healthy subjects by as much as 10 C and more.

Observations on patients with disturbances in the peripheral circulation also proved that nicotinic acid preparations are not suitable for the treatment of impaired circulation in fingers and toes.

**Cyclical Changes in Sizes of Nuclei in Vaginal Smear.**—In 13 women who had fairly regular menstrual cycles, vaginal smears were made every second day throughout a whole cycle. The smears were fixed and stained according to the technique of Papanicolaou. In every smear at least 200 nuclei were measured and grouped into six classes according to the size of the nuclei. Although these classes of nuclei do not correspond completely to the five types of cells that Papanicolaou has ascribed to the various epithelial layers of the vagina, the nuclei of classes 5 and 6 correspond to the epithelial cells of the surface zone and the nuclei of class 1 to the epithelial cells of the middle and lower layers. On the basis of the studies on 13 women, in whom a total of about 30,000 nuclei were measured, the authors conclude that the epithelial cells with the smallest nuclei increase in number around the middle or at the beginning of the second half of the cycle. There is a second peak after the menstrual flow ceases. The number of macrocellular epithelial cells vary inversely as the number of parvicellular epithelial cells. These observations clearly indicate cyclical changes in the sizes of the nuclei in the vaginal smears.

**Counting of Thrombocytes in Fluorescent Light.**—The most widely used method at present for counting thrombocytes is that of Fonio, which has proved adequate for practical diagnosis. Kosenow's aim is not to replace this technique by a new one, but only to make it more rapid and easy with the aid of the fluorescent microscope. Auramin and thioflavin S were found to be the most satisfactory dyes. Inspection is done under oil immersion with an ordinary microscope, but the room should be dark if possible. For illumination the author employs a carbon arc lamp and a fluorescent lamp that has a high pressure mercury burner. Special filters are also desirable. Numerous comparative tests revealed that thrombocyte counts in specimens stained with fluorescent dyes were essentially the same or slightly higher than those by the Fonio method, because in the fluorescent light thrombocytes are less likely to be overlooked. The author stresses that with this method staining is rapid and simple, there is good contrast in the picture, and counting is rapid.

## Lancet, London

### 1:1-60 (Jan. 5) 1952

Approach to Specialism. E. Finch.—p. 1.
Mediastinitis Following Foreign-Body Perforation of Cervical Oesophagus. F. B. Korkis.—p. 4.
*Comparison of Oral and Subcutaneous Administration of Methonium Salts in Treatment of High Blood-Pressure. J. A. Kilpatrick and F. H. Smirk.—p. 8.
*Green Sputum. A. J. Robertson.—p. 12.
Hysterosalpingography in Female Infertility: Comparison of Lipiodol and Viskiosol Six. D. Freeth.—p. 15.
Trial of Pituitary Growth Hormone in Case of Hyperinsulinism Due to Islet-Cell Adenoma. K. O. Black, I. Macdougall, E. Reid and F. G. Young.—p. 19.
Indications for Barium Enema in Diagnosis of Carcinoma of Colon. M. Haggie.—p. 21.
Isolation and Properties of Third Clotting Factor in Blood-Platelets. S. van Creveld and M. M. P. Paulssen.—p. 23.
Colonic Replacement of Stomach: Early Results of Radiological Investigation. B. B. Harrison.—p. 25.
Underfeeding as Factor in Infantile Vomiting. B. S. B. Wood.—p. 28.

**Oral and Subcutaneous Administration of Methonium Salts.**—The general impression from the literature is that, despite the great convenience of oral medication, fewer patients fail to respond to subcutaneous administration of hexamethonium. Kilpatrick and Smirk describe the results obtained in the same group of patients with subcutaneous and oral administration of hexamethonium bromide. They found that much larger doses of hexamethonium bromide are needed by the oral than by the subcutaneous route. The effects of oral administration continue longer, but are less predictable. Symptoms of intolerance, such as malaise, diarrhea, abdominal distension, nausea, vomiting, and occasionally collapse, are observed in a large percentage of the orally treated patients. Oral therapy is more likely to be successful when the subcutaneous dose needed to control blood pressure is small, either from natural sensitivity, after sympathectomy, or where excretion is delayed, as in some patients with chronic nephritis. Sometimes a salt-poor diet makes oral therapy possible with hexamethonium bitrate. Patients whose blood pressure reduction is inadequate or who have important side effects from hexamethonium bromide orally should be maintained on the insulin-like regime with hexamethonium bromide subcutaneously. The best results can be obtained only by adjusting the dose, times of administration, and mode or modes of administration in terms of day-long observations of the patient's response. Failure to decrease hypertension with hexamethonium salts is usually due to a defect in technique, such as neglect to make use of the more satisfactory reduction in blood pressure in the standing and sitting postures, neglect of the changing sensitivity to hexamethonium bromide, incorrect usage, or unwillingness to use the subcutaneous route when the oral route is unsatisfactory.

**Green Sputum.**—Robertson tried to find out why sputum became green and the relationship of such sputum to bronchiectasis by collecting some 50 samples of green sputum from patients with bronchiectasis or pulmonary abscess. After much trial and error the method adopted was to centrifuge the sputum, preferably after allowing it to stand for some time, and then to emulsify the greenish upper layer with chloroform, and again centrifuge for a long time. In this way it was possible to get a green solution that was clear enough for spectrophotometry. The absorption curves in the spectrum were those of verdoperoxidase, and the author suggests that green sputum is purulent sputum in which there is failure to excrete verdoperoxidase, which accumulates and colors the sputum green. This happens whenever there is stagnation, especially in disease of the bronchial wall. Two clinical examples may be given: (1) during the night the patient may not cough much, and by morning his sputum may be green, but once this has been expectorated the purulent material may revert to its normal color unless there is continued difficulty with expectoration; and (2) in a lung abscess there is destruction of leukocytes with failure to excrete any enzyme, and a green color may be found when the abscess is coughed up.

## Medical Journal of Australia, Sydney

### 2:761-796 (Dec. 8) 1951. Partial Index

Rheumatoid (Ankylosing) Spondylitis: Its Early Manifestations and Early Diagnosis. J. H. Young.—p. 761.
Congenital Obstruction of Nasolachrymal Duct: Review of 130 Cases. J. B. G. Gibson.—p. 764.
Cross-Infection of Surgical Wounds. P. M. Rountree.—p. 766.
Clinical Observations on Series of Cases of Advanced Malignant Disease Treated with Antibiotics and ACTH. F. A. Maguire and M. McElhone. —p. 769.

### 2:797-832 (Dec. 15) 1951

Examples of Use of t-Test on Physiological Data. C. White.—p. 797.
Appendicitis in Childhood. E. S. Stuckey.—p. 804.
*Observations on Ethylidene Dicoumarin as Anticoagulant, with Special Reference to Puerperal Patients. W. McI. Rose and V. I. Krieger. —p. 813.

**Ethylidene Bishydroxycoumarin in Puerperal Patients.**—The ethylidene homologue of bishydroxycoumarin, which is 3,3'-ethylidene-bis (4 hydroxycoumarin), has the following advantages over bishydroxycoumarin: (1) it is less toxic than dicoumarin: (2) the recovery from hypoprothrombinemia is more rapid, being almost complete within 24 hours instead of three or more days; and (3) hypoprothrombinemia can be prolonged by continuous administration. This paper reports on the prophylactic and therapeutic use of this drug. The 400 patients who were given ethylidene as a prophylactic measure included 364 women who underwent cesarean section and 36 who had a hysterectomy. The group of patients in whom the drug was used for treatment included 16 with thrombosis of the femoral artery, 14 with calf vein thrombosis, 12 with pulmonary infarction, and 11 with cardiac infarction. The drug is administered by mouth in the form of 100 mg. tablets. Treatment is usually begun with a dose of 500 mg. on each of the first two days and 300 mg. on the third day. Further dosage is regulated by the prothrombin level of the blood, which is determined three times a week. At first an attempt was made to keep the prothrombin level below 30% of the average normal level, but 50% was adopted in later cases. From the results obtained the authors conclude that ethylidene bishydroxycoumarin is as safe and yet as effective as bishydroxycoumarin. The clinical results also show that ethylidene bishydroxycoumarin may be used in the last eight weeks of pregnancy without ill effect to either mother or child.

## Medicina, Mexico

### 31:471-494 (Dec. 10) 1951. **Partial Index**

Treatment of Rheumatoid Arthritis with 11-17 Oxysteroids, Synergistic Substances, and Substitute Substances. J. Torres Morales.—p. 471.

*Results of Penicillin Treatment of Mal del Pinto After Two Years. C. Rein, D. Kitchen, F. Marquez and G. Varela.—p. 488.

**Results of Penicillin Treatment of Pinta After Two Years.**—Microcrystalline procaine penicillin G in oil with aluminum monostearate was used in treating 665 patients with pinta. The Treponema carateum disappeared from the skin in about six hours following injection of from 300,000 to 1,200,000 units. Much longer periods were required for the disappearance of the parasites when aureomycin, dihydrostreptomycin, chloramphenicol, and terramycin were used. Clinical and serological examinations of 350 of the patients were carried out at intervals of from one to three months for two years. Serological response takes place much more slowly in pinta than in syphilis or yaws, perhaps because the disease has usually been present for a long time before treatment is sought. Clinical results are also less rapid, five or six months being required for the disappearance of the pintids. The results obtained with one injection of 4 cc. (1,200,000 units) are better than those obtained with one injection of 1 cc. weekly for four weeks, although the total dosage is identical. At the end of the two year period, 20% of the patients had a negative serological response; 55% showed marked improvement; and in 25% the serological reaction was unchanged.

## Nordisk Medicin, Stockholm

### 46:1779-1810 (Nov. 28) 1951. **Partial Index**

*Diagnosis and Treatment of Tumors of Bladder. G. Giertz.—p. 1779.

Intravenous Nutrition with Amino Acids. F. Lidström and A. Wretlind.—p. 1783.

Fixation Treatment of Fractures of Carpal Scaphoid Bone. S. Wallensten.—p. 1789.

Lymphogranulomatosis of Heart. Case of Hodgkin's Sarcoma of Heart. O. A. Sydnes.—p. 1794.

Torsion of Gallbladder. S. E. Ekdahl.—p. 1796.

**Diagnosis and Treatment of Bladder Tumors.**—Giertz treated 409 fibroepitheliomas of the bladder from 1940 to 1948. The tumors varied from benign papillomas to highly malignant solid tumors. In so far as possible the degree of malignancy, the size, depth of growth, and possible presence of metastases must be determined in judging a tumor of the bladder. The prognosis is believed to depend chiefly on the incidence of metastases. The deeper the tumor penetrates, the graver the prognosis. Necropsy in 67 of the cases (Franksson) revealed no metastases when the tumor was limited to the submucosa and metastases in only two out of eight cases in which the tumor had grown into the musculature but had not penetrated the wall, but there were metastases in more than four-fifths of the cases with deep perivascular growth. Of the patients with tumors limited to the mucosa, 83%, of those with tumors limited to the submucosa, 70%, and of those with tumors penetrating the musculature, only 20% were living after five years. In patients with tumors of the perivascular growth only 1 of 17 lived three years, and none lived five years. The author's impression is that the tumors retain their original character and degree of malignancy. Radiotherapy has but slight effect. Benign tumors limited to the mucosa are treated radically by removal of the tumor and the underlying mucous membrane by transurethral or transvesical intervention. With larger benign tumors suprapubic operation is performed to a large extent, but in recent years the transurethral method has been applied. With malignant tumors still limited to submucosa, cystectomy is not generally necessary. If the tumor has grown into but not through the musculature, resection is preferred whenever it is technically possible to remove the tumor by partial extirpation of the bladder. Since often it cannot be determined beforehand whether or not resection is possible, all patients are now prepared for ureter implantation, to allow the choice at operation between resection and total cystectomy. If the tumor has invaded the perivascular tissue it is questionable whether operation should be attempted, but total cystectomy is carried out if the tumor is not too extensive and fixed and if the general condition is good. Continued systematic research is necessary to establish what forms of treatment under different circumstances give the best results.

## Presse Médicale, Paris

### 59:1697-1716 (Dec. 22) 1951

400 Cases of Allergic Bronchial Asthma; Statistical Study. Pasteur Vallery-Radot and P. Blamoutier.—p. 1697.

*Pain in Thoracic Portion of Vertebral Column Associated with Gynecologic Syndromes Characterized by Excessive Quantities of Estrogens. A. -J. Bret and M. Bardiaux.—p. 1698.

Various Stages of Biological Diagnosis of Virus Pneumonia. H. Boucher, J. Bertein and J. Vailhé.—p. 1700.

**Dorsalgia in Gynecologic Syndromes.**—The occurrence of spontaneous pain, in general localized between the scapulas in the thoracic portion of the vertebral column and frequently radiating unilaterally to the intercostal spaces, has been reported in 24 women. Thirteen had never had children, while the remaining 11 had 18 children, 1 extrauterine pregnancy, and 13 abortions. They were from 14 to 58 years old, but as a rule the first attack of pain occurred between the ages of 25 and 40. Sometimes it was dull and hardly perceptible and sometimes it was lancinating and paroxysmal. Occasionally the pain was elicited by leaning against the back of a chair, or it was preceded by work with the upper extremities or by sudden and prolonged strain. The thoracic pain was frequently associated with pain in the lumbosacral region. Roentgenologic examination of the vertebral column frequently revealed that lesions had been present from adolescence or were congenital, such as complete sacralization of the fifth lumbar vertebra or hemisacralization. Flattening of the thoracic vertebrae with a squamous aspect of the cartilage was observed in 10 patients. The dorsalgia was associated with functional disturbances of the sex organs, such as painful breasts, menstrual disturbances, or vaginal discharge. Biopsies of endometrium were made in nine patients, and revealed absence of luteinization in five. The temperature of three patients was elevated, with 99 F during the first part of the cycle in one, and with 100.4 F to 101.2 F during the first two days of menstruation in two. Of 22 patients who had sexual relations, 21 complained of frigidity following the onset of their disturbances. Treatment with estrogens seemed to have elicited or aggravated the disturbances in 9 of the 24 patients. Pain subsided rapidly after injections of progesterone and oral administration of tablets of methyl testosterone, but frequently the favorable results were only temporary.

## Revue de la Tuberculose, Paris

### 15:917-1064 (No. 10-11) 1951. **Partial Index**

Critical Study of Concept of Primary Complex in Primary Tuberculous Infection. R. Kourilsky, M. Bidermann and S. Ettedgui.—p 917.

Comparative Results of Culture and Smear Examination for Detection of Koch's Bacilli. A. Meyer, R. Galland and B. Kobrinsky.—p. 932.

*Synergistic in Vitro Effect of Streptomycin, *p*-Aminosalicylic Acid, Viomycin and Neomycin in 11 Combinations on *Mycobacterium* Tuberculosis. Coletsos.—p. 957.

**In Vitro *Synergism of* Antibiotics on Mycobacterium Tuberculosis.**—Four strains of Mycobacterium tuberculosis, two of which were resistant to streptomycin, were tested in vitro in a Löwenstein-Jensen medium to which streptomycin, sodium *p*-aminosalicylate, viomycin, and neomycin had been added in 11 different combinations. Results showed that in general, there was intensified synergism when two antibiotics were employed, simple synergism when three were employed, and no evident synergism when all four were used. Best antibiotic combinations were in the order as follows: streptomycin combined with sodium *p*-aminosalicylate first, streptomycin combined with viomycin second, and sodium *p*-aminosalicylate combined with viomycin last. A combination of all three antibiotics should be avoided.

## Riv. di Pat. e Clin. della Tuberc., Bologna

**24:257-320 (Sept.-Oct.) 1951**

•Evaluation of Anatomic and Functional Condition of Heart in Pulmonary Tuberculosis. L. Costantini.—p. 257.
Test of Constellation of Wuhrmann, Wunderly, and De Nicola (Cadmium Sulfate Reaction-Weltmann's Reaction) on Globulin Fractions of Serum, and Erythrocyte Sedimentation Reaction in 133 Cases of Pulmonary Tuberculosis. F. Nobile.—p. 265.
•Mediastinal Pleurisy. B. Cossar and F. Antonini.—p. 286.
Histamine Factor of Tuberculin Reaction: Critical Review. F. Malaguzzi Valeri.—p. 296.

**Cardiac Function in Patients with Pulmonary Tuberculosis.**—Cardiac function was studied in 40 patients with pulmonary tuberculosis by means of electrocardiograms taken before and after administration of ouabain. In 10 patients with exudative tuberculosis no heart lesions were known to be present; in 10 with cavitary tuberculosis and widespread bilateral involvement there were vague clinical signs of slight cardiovascular insufficiency; in 20 with ulcerative tuberculosis, of whom 10 were undergoing pneumothorax, signs of cardiac insufficiency had been demonstrated by prior electrocardiograms. Tachycardia was present in almost all the patients. In the morning one electrocardiogram was obtained with standard leads from the fasting patient. Additional electrocardiograms were taken 5, 15, and 30 minutes after intravenous injection of 0.25 mg. of ouabain. The condition of the heart was in general good in patients with exudative tuberculosis. Myocardial lesions were found most frequently in the 10 patients with cavitary tuberculosis. These were revealed by a deranged auriculoventricular conduction, an altered spreading of the intraventricular excitation, and definite pathological repolarization attributable to a coronary insufficiency that was accentuated by the ouabain. The tracings were less consistent and less definite in patients with ulcerative tuberculosis, but they revealed that the disease impairs the function of the left ventricle. The bradycardic action of ouabain was observed in one patient with exudative tuberculosis and in four patients with ulcerative tuberculosis. Tachycardia was observed in four patients with cavitary tuberculosis and in two patients with ulcerative tuberculosis. The myocardial lesions may be due to the tuberculous infection of the heart muscle and to a diminished supply of oxygen to the myocardium. The disturbances of rhythm are possibly due to a reaction of the vagus nerve to stimulation of the cerebral centers impaired by anoxia. These and other causes may have a pronounced harmful action on the heart that, however, cannot be classified as cor pulmonale because it would not be justified by the clinical and electrocardiographic manifestations. A definite diagnosis and prognosis of the condition of the heart in patients with pulmonary tuberculosis is difficult, and all available means should be used in the attempt to detect concealed heart lesions in these patients. Ouabain proved to be a good adjuvant in the diagnosis.

**Mediastinal Pleurisy.**—The authors review extensively the clinical, roentgenologic, and anatomicopathological aspects of pleurisy involving the mediastinum. Mediastinal pleurisy may be central, posterior, anterior, superior, inferior, right, and left according to the area of the mediastinum that is affected. It may be acute or chronic, with or without effusion. Exudative mediastinal pleurisy may be serofibrinous, purulent, and hemorrhagic. The causative agents include tubercle bacilli, Treponema pallidum, and pneumonococci. Clinically a definite diagnosis of mediastinal pleurisy cannot be established without a roentgenographic investigation of the chest. Subjective symptoms in severe cases may be retrosternal pains extending to the breast and the axillary area, while the commonest objective finding may be contralateral deviation of the trachea because of compression of the exudate against the mediastinal organs. The typical roentgenographic finding is a triangular shadow of increased density with varying positions of the margins according to the area of the mediastinum involved. In addition, the roentgenogram reveals collateral phenomena, such as displacement of the mediastinal organs and hypomotility of the diaphragm, that make diagnosis difficult. Differentiation of this disease from paravertebral osteolytic abscess, pericarditis, esophageal diverticulitis and megaesophagus, retrosternal goiter, hypertrophic thymus, lymphogranuloma and lymphatic leukemia localized in the mediastinum, and other diseases is difficult. Clinical and physical signs, bronchography and body section roentgenography, puncture of the pericardium, hematological findings, and biopsy help to determine the correct diagnosis. Rotation of the patient during roentgenologic investigation is indicated. The authors reported 19 instances of mediastinal pleurisy on 7,968 routine examinations of the chest (an incidence of about 0.24%) during the period of 1947-1950 in the hospital of Addis Ababa. In only one-third of these patients was a diagnosis of mediastinal pleurisy considered before roentgenograms were taken.

## Thorax, London

**6:343-454 (Dec.) 1951**

Observations on Normal Anatomy of Bronchial Arteries. L. Cudkowicz and J. B. Armstrong.—p. 343.
Anatomy and Applied Anatomy of Mediastinal Fascia. P. Marchand.—p. 359.
Pneumonectomy with Immediate Thoracoplasty in Treatment of Pulmonary Tuberculosis. G. Cruickshank and E. Papamichael.—p. 369.
Pulmonary Resection for Tuberculosis in Children. C. A. Ross.—p. 375.
Rupture of Oesophagus. B. V. Slesser.—p. 389.
Surgical Treatment of Bronchial Fistulas After Lung Resection for Pulmonary Tuberculosis. O. Monod, G. Babou and J. Lo.—p. 397.
Thoracic Chordoma. G. G. Crowe and P. B. L. Muldoon.—p. 403.
Bronchography in Children. M. Bates, I. C. W. English, H. M. Foreman and T. M. Wilson.—p. 408.
Importance of Sleeping Posture in Spread of Pulmonary Tuberculosis. W. H. Helm.—p. 417.
Chronic Diffuse Interstitial Fibrosis of Lungs. A. G. Heppleston.—p. 426.
Study of Open Circuit Method of Intrapulmonary Mixture of Inspired Air. M. R. Becklake.—p. 433.

## Ugeskrift for Laeger, Copenhagen

**113:1653-1686 (Dec. 6) 1951. Partial Index**

Investigations on Disinfection of Wounds. K. T. Kjølhede, J. Bock and E. Lund.—p. 1657.
*Psychoses Following Antabuse Treatment. P. J. Rasch.—p. 1658.
*Dosage of Antabuse® with Special Regard to Avoidance of Side-Effects. O. Martensen-Larsen.—p. 1660.

**Psychoses Following Antabuse® Treatment.**—The three cases of psychosis in chronic alcoholics are attributed to the tetraethylthiuramdisulfide (antabuse®) medication. The psychoses were usually marked by excited confusion, but at times also by apathy, which in two cases represented a terminal phase in the course of the psychosis and in one case increased to stupor. The recurrent signs of paresis seen in the two patients who passed through a definite apathetic or stuporous phase disappeared spontaneously after a longer time. In all cases there had apparently been an overdose of the substance because the subjective distaste for alcohol was not considered sufficient; later experience showed that the attained effect had been fully sufficient. Rasch urges careful dosage and attention to early psychic symptoms during antabuse treatment.

**Dosage of Antabuse® with Special Regard to Avoidance of Side-Effects.**—Martensen-Larsen warns against unnecessarily large doses of tetraethylthiuramdisulfide (antabuse®). On test with light beer (or corresponding amount of alcohol) there should be only a slight flush, feeling of warmth, and increase in pulse. The patients should consult the physician at stated intervals. Since the effect of the drug may increase during the first three months, depending on the regular intake, no final minimal maintenance dose must be accepted as satisfactory before this period is over. At every consultation attention must be directed to possible side-effects, which must be borne in mind in determining the continued dosage. Tetraethylthiuramdisulfide can be regarded as a useful and safe means of treatment only if these considerations are followed.

# BOOK REVIEWS

**Modern Practice in Infectious Fevers. Vols. I & II.** Edited by H. Stanley Banks, M.A., M.D., F.R.C.P., Senior Physician, Park Hospital, Hither Green, London. Cloth. *$20 per set. Pp. 496; 499-989, with 211 illustrations.* Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1951.

This book, in general, offers a good discussion of acute infectious diseases. The individual chapters have been written by 52 contributors, chiefly from the British Commonwealth, with a few from America. The first part of the first volume is devoted to a general approach to infections, beginning with an interesting chapter from a general biologic point of view on the distribution in time and space of the various types of microorganisms. Short articles follow on laboratory aids to diagnosis and treatment. The value of the short section on biochemical methods is questionable in a book of this scope. Immunization against the various fevers is included in separate articles under a single chapter heading and is not discussed under the individual diseases. The remainder of volume 1 is taken up with the discussion of bacterial fevers. Special emphasis is placed on the bacteriology and pathology of the particular infections. The discussions of general measures, including supportive therapy, are not as detailed as the discussions of specific therapy. In spite of the inclusion of a chapter on chemical methods, the biochemical changes in specific diseases, such as the alterations in the blood chlorides in pneumonia, are largely omitted. Tuberculosis and the venereal diseases are excluded except for a discussion of tuberculous meningitis.

The second volume includes the discussions of viral, rickettsial, spirochetal, protozoal, and systemic mycotic diseases, as well as those diseases of unknown etiology that resemble infections, such as infectious mononucleosis. Most of the articles have short lists of references appended to them; in a few articles, the references are extensive. The illustrations are well chosen and well reproduced. The electron micrographs are particularly noteworthy, and the photomicrographs of pathological preparations are good. The clinical photographs often have distracting backgrounds, but the lesions are well shown. The design and reproduction of the graphs and charts depicting the clinical course of patients are usually poor. The color plates are uniformly good. The book should serve its purpose well as a guide to practitioners who may be treating acute infections.

**Brain Metabolism and Cerebral Disorders.** By Harold E. Himwich, M.D., Chief, Clinical Research Branch, Medical Division, Army Chemical Center, Maryland. Cloth. $6. Pp. 451, with 53 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1951.

The author of this book takes for granted that the brain is a chemical machine. To the uninitiated, it may come as a shock to learn that the brain is not as different from muscle as muscle is from the liver. In this era in which psychosomatic medicine receives so much emphasis, it is hard to believe that what we are, what we think, and what we do depends on a great deal of highly complicated chemistry. This view may seem unsatisfactory and unprofitable to some, but it is the correct view for the modern scientific physician, and it becomes increasingly profitable as new techniques are developed for observing the minute and rapid changes that occur in the chemistry of the cerebral neurons. For the first time, we are in possession of sufficiently refined tools to provide an inside view of brain function. The electron and the radioactive tracer are the functional probes of the neurochemist, the new "neuroanatomist," who carries the description of central nervous organization beyond the gross and static histological range to the ultramicroscopic and highly dynamic chemical range.

Dr. Himwich is in the forefront of the neurochemists; he has his eye on the future, but, in this book, he organizes the experience of the past. The scope of this book is vast, for it starts with a discussion of molecular structure and works its way up through phylogeny and ontogeny to the highest levels of nervous function. Electroencephalography is considered because the author accepts the electrical activity of the brain as a useful indicator of brain function. Autonomic, sensory, motor, and associative functions are considered because disorders of brain metabolism can manifest themselves in disturbances of function in these spheres. In the present state of our knowledge, so vast a work is necessarily full of gaps. It is really surprising that with so much crucial information lacking the author has been successful in weaving a general pattern on a coherent fabric of fact. The work is written in essay style and is surprisingly easy to read. Though a strictly scientific attitude is maintained throughout, the author's manner is engagingly informal.

The book is divided into two parts. The first is concerned with energetics and the second with patterns of nervous activity. The contents include the following topics: foodstuff of the brain mechanisms for maintaining the carbohydrate supplies of the brain and for maintaining brain metabolism during hypoglycemia, the oxidation of carbohydrate in the brain, aspects o cerebral circulation, cerebral metabolism during growth o lower mammals, a biochemical basis for neurophylogenesis human cerebral metabolic rate, therapeutics and its application to brain metabolism, the somatic division of the centra nervous system, pattern of activity in the five phyletic layers the barbiturates and other depressant drugs, a classification o clinical signs and a theory of narcosis, and prospects and problems for the future as well as a bibliography and an index.

Reading is facilitated by a summary at the end of each chapter. The diagrams, figures, and tables provide a systematic arrangement of important qualitative and quantitative data tha prior to this publication were scattered widely through the medical and chemical literature and were, therefore, generally unavailable. One longs at times, toward the middle and end of thi book, for luminous simplifications and wonders whether judicious omissions would not have been helpful; however, the worl has an almost biologic complexity that is more appropriate thai artificial simplification and schematization. Everything is included, good and bad, old and new material, speculation an fact. Some irreconcilable paradoxes are left hanging in the ai to the admitted discomfort of the author. A bibliography of ove 1,000 titles is skillfully woven into the text. This bibliograph is unique and is worth the price of the book.

For the brain chemist, this is an invaluable reference worl For the anesthesiologist and the interested physician, it is a one volume library of the best that has been thought and said on th subject of the metabolic basis of brain disorders.

**Global Epidemiology: A Geography of Disease and Sanitation. Volum II: Africa and the Adjacent Islands.** By James Stevens Simmons, B.S M.D., Ph.D., Dean and Professor of Public Health, Harvard Universit School of Public Health, Cambridge, Mass., Tom F. Whayne, A.B., M.D M.P.H., Colonel, M.C., United States Army, Gaylord W. Anderson, A. B M.D., Dr.P.H., Mayo Professor and Director, School of Public Healtl University of Minnesota, Minneapolis, Harold Maclachlan Horack, B.S M.D., Instructor in Medicine, Tulane University School of Medicine, Ne Orleans. Associate author: Ruth Alida Thomas, A.B., M.A., M.P.H Research Associate, School of Public Health, University of Minnesot Minneapolis, and collaborators. Cloth. $15. Pp. 652, with illustration J. B. Lippincott Company, *227-231 S. Sixth St.*, Philadelphia 5; Aldin House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1951

In this volume, Africa and the adjacent islands are discussed Until World War II, this field was almost unexplored, as dat concerning contagious and epidemic diseases as well as othe important material from the far flung countries of the glob had never been brought together, so that it could be referred to readily. Although much of this material was available in th United States, it was scattered in all kinds of books, journals, an documents, so that it required a great deal of research to glea anything of value for even one country.

The medical department of the United States Army undertool to bring together this material as a project of the Division o Preventive Medicine in the Office of the *Surgeon-General.* Th

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The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

group working here, under the leadership of Brigadier General James S. Simmons, rapidly expanded, so that various fields of public health as applied to global epidemiology were studied. In the discussion in this volume, Africa has been divided into eight sections and is considered under the influence of various factors, such as geography and climate, population and socioeconomic conditions, environment and sanitation, health services and medical facilities, and a consideration of the diseases that occur in the various sections. There is an excellent annotated bibliography at the end of each section. The one on the Belgian Congo, for instance, includes 69 references. The territory known as Ruanda-Urundi, a section that few Americans have ever heard of, is described in seven pages of text, with 22 bibliographic references.

This book would be of unestimable value if military operations were purposed in any part of Africa by our armed forces; however, it is not necessary to wait for military operations to prove its usefulness, as any person or firm contemplating visiting Africa for any length of time would do well to have this reference book, in order to determine such things as types of clothing best suited to the country, what insects one must protect against and what diseases might occur, if adequate precautions are not taken. It is a book that should be in all reference libraries.

**Diseases of the Nervous System.** By W. Russell Brain, D.M., F.R.C.P., Physician to London Hospital and to Maida Vale Hospital for Nervous Diseases, London. Fourth edition. Cloth. $8.50. Pp. 1002, with 85 illustrations. Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Sq., London, E.C.4, 1951.

This edition has appeared four years after the last edition. The book has been popular with students and neurologists. This edition brings the book up-to-date, particularly with regard to therapy. There are new sections on leptospiral meningitis, temporal arteritis, infectious mononucleosis, and sarcoidosis. From whatever standpoint we look at this work, it is good. What has been said (*J. A. M. A.* **137**:1348 [Aug. 7] 1948) of the third edition can be repeated: ". . . the amount of information offered is enormous. It is good for the student, good for the practitioner, and good for the diehard neurologist." The editorial work deserves particular praise. The whole book contains only a few insignificant misspellings. Any criticism of the book can concern only minor items. For example, though the terms "symptoms" and "signs" are used, the author for the most part appears to forget that symptom is a subjective and sign an objective phenomenon. Wasting and fasciculation of the muscles and zoster eruption are not symptoms but signs. The author is thrifty with the use of eponyms, but he could cut the quota still further. Why the syndrome of Weber, Millard-Gubler, and Foville? Why the reflex of Hoffmann, Bechterew-Mendel, and Oppenheim? Why the sign of Wartenberg? A physiological or an anatomic name will mean more to the student than any proper name, however illustrious. The term "Parkinsonism" has already led to such a horror as "Rombergism." It is better to drop the "ism" completely; these are diseases or signs, not doctrines, tenets, or tendencies. There are no "tendon reflexes," but deep muscle reflexes, and they should be named according to the muscle involved. They should be called reflexes consistently and not "reflexes" in one place and "jerks" in another. There is no supinator jerk or radial reflex," but there is a brachioradial reflex. Both "paresthesiae" and "dysesthesiae," are referred to, but spontaneous sensations cannot be called paresthesiae, since "para" means beside or added to. Paresthesiae therefore imply an external stimulus. There cannot be a "nervus cutaneous antibrachii lateralis." It is ante, meaning "before" and not "anti," which means against. By passive movement we examine the muscle "tonus," not the muscle "tone." There is an acoustic muscle tone, besides the muscle tonus. Though the term "superficial abdominal reflex" is used once, later the confusing term "abdominal reflexes" is used without further elaboration and without distinction between superficial and deep abdominal muscle reflexes. The term "pseudobulbar palsy" is called "unsatisfactory," but it is still used. There is nothing "pseudo" about this palsy; it is genuine. It should be called "spastic" or "supranuclear." Spastic spinal palsy is not called "pseudospinal palsy." Why then should a spastic bulbar palsy be called "pseudobulbar palsy?" One gets the impression that meralgia paresthetica is a traumatic affection; however, it is more often nontraumatic than traumatic. Speaking of painful feet, it is said: "This syndrome has been attributed to deficiency of nicotinic acid, or of pantothenic acid." The comma should not be there, since the two kinds of acid are different.

**Frontal Lobotomy and Affective Behavior: A Neurophysiological Analysis.** By John F. Fulton, M.D., Sterling Professor of Physiology, Yale University, New Haven. [Thomas William Salmon memorial lecture.] Cloth. $3. Pp. 159, with 21 illustrations. W. W. Norton & Company, Inc., 101 Fifth Ave., New York 3, 1951.

The author is eminently equipped to discuss frontal lobotomy from the physiological viewpoint. As the result of animal experimentation in the laboratory under the author's direction, Egas Moniz, in 1935, conceived the idea that leukotomy might be of value in the treatment of mental disease. Moniz developed his clue rapidly into a form of treatment which has now been used on at least 20,000 persons in many different countries. The historical background of this method of treatment and the physiological function of the cerebral cortex discussed by the author in the first part of the book form the subject of the first two Salmon Memorial Lectures given at the New York Academy of Medicine, now available in printed form. A subsequent chapter deals with recent behavioral studies in animals experimentally operated on, and the terminal section of the book considers the operation in man. The author believes that frontal lobotomy is an efficacious therapeutic tool for the relief of symptoms in patients with otherwise hopeless psychoses. In the past three years, to overcome the difficulties that arose when the operation was used without full recognition of the basic physiological principles behind it, surgeons have adopted a restricted procedure and have attempted to fit the operational technique to the nature of the mental illness which they hope to overcome. Depressed patients and schizophrenic patients with subnormal psychomotor activity should, in the author's opinion, have a resection of the superior orbital gyrus or an interruption of its projections; the agitative, aggressive, and overactive psychotic patient should be treated by singulectomy or topectomy involving areas 9 and 10 of the cerebral cortex. Operations involving the orbital surface of the brain do not result in intellectual impairment. The modern tendency is to replace radical lobotomy, as originally carried out in 1935, by the method of a more circumscribed lesion.

This book is sound from many points of view. The physiological approach is essential to a clear understanding of this relatively new surgical procedure. The conservatism expressed by the author is admirable and should be given great weight in decisions regarding the use of lobotomy in the treatment of mental disease. This book is clearly written and contains adequate illustrations and a selective bibliography. It gives a succinct summary of the problem; however, for the final clinical evaluation of frontal lobotomy, we must wait until some future date.

***Tumors of the Skin: Benign and Malignant.*** By Joseph Jordan Eller, B.S., M.D., Director of Department of Dermatology, New York City Hospital, New York, and William Douglas Eller, M.D., Assistant in Dermatology and Syphilology, University Hospital, New York-Bellevue Medical Center, New York. Second edition. Cloth. $15. Pp. 697, with 553 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1951.

In this volume, the authors have classified and described, clinically and histologically, more than 100 types of tumors of the skin and adjacent mucous membranes. Discussions on etiology, differential diagnosis, and various modes of therapy are included. The first half of the book is devoted to benign tumors and precancerous lesions of the skin; the last half discusses malignant tumors and treatment. For the commoner tumors, complete details of therapy are given, including techniques of scalpel or electrosurgery, dosage schedules for roentgen ray and radium therapy, and any indicated medical or physical treatment. In the chapter on carcinoma of the skin, there are helpful diagrams illustrating placement of radium and the optimal zone of roentgen irradiation or excision in typical lesions of different sites. A special chapter deals with techniques of plastic surgery as they apply to excision of skin tumors. General discussions of radiation therapy and radiation physics are included in the section on carcinoma of the skin and in a separate chapter at the end of the book. A number of dosage tables and diagrams are included. An extensive bibliography follows each chapter, and the material is well indexed. In this edition, several new disease entities have been added, and the sections on therapy have been expanded and brought up-to-date. This is a useful reference book for dermatologists, surgeons, roentgenologists, and others interested in tumors of the skin, and it should be particularly helpful as a manual of treatment for the dermatologist and general practitioner.

**Surgery of Peripheral Nerves.** By Emil Seletz, M.D., F.A.C.S., F.I.C.S., Assistant Clinical Professor of Neurological Surgery, University of Southern California School of Medicine, Los Angeles. Art editor: Tom Jones, Professor of Medical and Dental Illustration and Head of Department, University of Illinois, Chicago. Cloth. $10.75. Pp. 185, with 136 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, 1951.

This volume is primarily an illustrative atlas covering the surgical technique involved in suturing disrupted peripheral nerves in every possible location. The author, during World War II, had experience with over 2,000 nerve injury patients at Wakeman Hospital Center, and he is well qualified to delineate the results of this experience. Skin incisions that permit the exposure of each major nerve in all locations are illustrated. When incisions in relation to moving joint surfaces are unavoidable, they are placed so as to produce a minimum of subsequent disability from scar contracture. Techniques are illustrated for mobilizing long segments of nerves to overcome the large gaps between the nerve ends that often occur in war wounds. A continuous incision over the length of the entire nerve trunk is not recommended; skin and subcutaneous scarring are reduced by interrupted incisions. Mobilization of normal nerve is then accomplished by undermining intact superficial tissues and fascia. These refinements in technique developed independently in the hands of many army neurosurgeons, but Dr. Seletz deserves credit for being the first to emphasize them in the literature. The actual operative photographs are not technically good because of poor contrast. The schematic illustrations of surgical anatomy are pleasing but add little to those available in standard texts.

The diagnosis of peripheral nerve involvement is covered by photographs of standard deformities, with outlines of typical sensory loss, and the muscles that might be affected are listed with the expected deficit in movement. Numerous anatomic drawings do not greatly assist in illustrating the practical motor deficits to be brought out by clinical testing. No attempt is made to delineate those functional tests that are useful in practice from those that give equivocal results because of substitution by uninvolved muscles. Therefore, as a reference for diagnosis of nerve injuries, it is believed that this volume compares unfavorably with the excellent manuals already available.

The technique for suture of the grossly disrupted nerve is clearly described; however, a neuroma in continuity is the more equent finding in military wounds, and advice to the surgeon garding choice of treatment in this situation is lacking. Exosure of lesions high in the brachial plexus or sciatic foramen is demonstrated without mention of the minimal benefit that is derived from nerve suture in these situations. Despite these criticisms, this volume will constitute a useful reference for those undertaking the surgical repair of peripheral nerve lesions.

**Cardiac Pain.** By Seymour H. Rinzler, M.D., F.A.C.P., Instructor in Rehabilitation, New York University College of Medicine, New York. Publication number 113, American Lecture Series, monograph in American Lectures in Circulation. Edited by Irvine H. Page, M.D., and A. C. Corcoran, M.D. Cloth. $3.75. Pp. 139, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, 1951.

This brief lecture is concerned with the history of knowledge of cardiac pain, the nerve pathways of the heart, the pathogenesis and differential diagnosis of cardiac pain, and some common medical and surgical techniques for the relief of this condition. There are already many excellent, scholarly volumes that deal with this subject.

**Angiocardiography.** By Charles T. Dotter, M.D., Assistant Professor of Radiology, Cornell University Medical College, New York, and Israel Steinberg, M.D., Assistant Clinical Professor of Radiology and Medicine, Cornell University Medical College. Annals of Roentgenology Series of *Monographic Atlases*, Volume XX. Cloth. $16. Pp. 304, with 635 illustrations. Paul H. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1951.

This book is an authoritative reference based on several thousand angiocardiographic examinations by the authors, whose experience with the method doubtlessly exceeds that of any other group in the field. It deals comprehensively with the technicque, indications, limitations, and interpretations of angiocardiography in the normal heart as well as all types of congenital and acquired heart disease. In addition, examination of pulmonary disease and mediastinal tumors by contrast visualization is also covered.

This book will find its greatest usefulness for those who do a considerable amount of cardiac fluoroscopy. In this respect, it will enable the fluoroscopist to give meaning to the cardiac silhouette in terms of its "living anatomy," rather than to employ the empiricism of inflow and outflow tract enlargement. Although angiocardiography in congenital heart disease is dealt with comprehensively, it seems likely that the technique will find less and less diagnostic use as cardiac catheterization is more extensively employed.

The book is profusely illustrated with reproductions of angiocardiograms, accompanied by explanatory line diagrams that are invaluable. The style of the text is concise and readable but, at times, unnecessarily repetitious. The authors are to be complimented on presenting a specialized subject in a lucid and appealing manner.

**The People in Your Life: Psychiatry and Personal Relations.** Edited by Margaret M. Hughes. By ten leading authorities. Prepared under auspices of Town Hall, New York. With foreword by Isabel Leighton. Cloth. $3.50. Pp. 278. Alfred A. Knopf, Inc., 501 Madison Ave., New York 22, 1951.

This is a compilation of a series of lectures on human relationships. The lectures were prepared and delivered by leading authorities in such fields as psychiatry, sociology, religion, and anthropology, and were discussed on the "Town Hall of the Air" radio program. The purpose of the program was to advance mental health by discussion of some of the most important and often troubling situations in an average human life.

Chapters of the book are complete presentations in themselves, including a "question and answer" period of audience participation. They are arranged to cover the cycle of living, from the first interrelationships of men and women through problems of establishment of families, growth of children, and correlated problems of business contacts, personal friendships, and social contacts.

The material discussed is pointed and readable, and the questions and discussions are valuable. This book will be of interest to both medical and lay persons. It is one of the best collections of material on preventive aspects of mental health for general consumption that has appeared in recent years.

**Studies in Medicine: A Volume of Papers in Honor of Robert Wood Keeton.** Cloth. $8.50. Pp. 396, with illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, 1951.

This volume of interesting and stimulating papers was prepared in honor of Dr. Robert Wood Keeton and was presented to him on the occasion of his retirement as head of the department of medicine of the University of Illinois College of Medicine, Aug. 31, 1951. The book was made possible by contributions from many of his friends, associates, and students, and the wide range of topics covered reflects his diversified interests.

The profession of medicine reaches its height in men who not only have contributed knowledge that saves and prolongs lives and mitigates suffering but also possess the graces and refinements of life that constitute exemplary character. It is such men who, through the ages, have provided support for the claim that the mission of the physician is of the noblest kind. The many articles in this book are a token of the fact that Dr. Keeton became a part of all whom he met. Prepared by colleagues to celebrate his distinguished career in academic medicine, it is a

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[illegible] It will become the "Bible" of public health, as were the other Rosenau volumes in their time. It has both the advantages and the disadvantages that are to be found in any book that is essentially a compilation of current reviews on various technical subjects, written by persons who are specialists in the particular field covered.

**The Rise of Scientific Philosophy.** By Hans Reichenbach. [illegible] University of California Press, Berkeley; Cambridge University Press, Bentley House, 200 Euston Rd., London, N.W. 1, [illegible]

In spite of the disdain with which some medical men look upon current philosophy, this volume would be helpful to the intelligent physician who is interested in a brief consideration of the significant developments of recent philosophy. As the author says, "This book is written with the intention of showing that philosophy has proceeded from speculation to science." Following the criticism of the speculative philosophy of the past, Professor Reichenbach shows how modern philosophy is being built on the firm foundation of agreements reached as a result of scientific study. Significantly, it is implied that scientific knowledge of ourselves and our environment places limits to what we may believe. We are shown how to find our way through our world without resorting to unjustifiable beliefs or assuming supernatural origin for moral standards. Modern logic is considered in detail, with an analysis of the nature of ethics. Indication is given of the practical help of symbolic logic in certain types of brain injury. The discussion on ethics is particularly helpful to the alert physician. Unfortunately, the volume is not documented, so that there is little incentive for the reader to browse further. Nevertheless, the book is an excellent presentation of the potential development of modern scientific philosophy.

**After the A Bomb: Emergency Care in Atomic Warfare.** Edited by Charles F. Behrens, M.D. Cloth. [illegible] Thomas Nelson & Sons, 19 E. 47th St., New York 17; Parkside Works, Dalkeith Road, Edinburgh 9; 3 Henrietta St., London, W.C.2, 1951.

According to its editor, this book is intended to provide a concise review of medical responsibilities at the working levels applicable to disaster conditions. Generally, it can be said that the book accomplishes this purpose.

With the vast amount of material that has been written within the last few years regarding the medical aspects of atomic, biologic, and chemical warfare, it is not surprising to find relatively little that is new in a book on these subjects. While it might be argued that the seriousness of the items under discussion warrants repetition, it must be recognized that the effectiveness of the book is reduced because of it.

By obtaining contributions from various authorities on the different subjects discussed, the editor has insured the technical

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**Selective Toxicity with Special Reference to Chemotherapy.** [illegible]

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# QUERIES AND MINOR NOTES

## INFLUENZA

To the Editor:—*Is there anything new for the treatment of influenza? Many physicians are using antibiotics, without much improvement. In a few cases in which antibiotics were used, the patients passed bloody urine and contacted dermatitis, especially after taking penicillin.* *M.D., Arkansas.*

Note: This inquiry has been referred to two consultants, whose respective replies follow.—Ed.

Answer.—Thus far there is no remedy that has received general approval. There have been favorable reports in regard to the use of aureomycin in the treatment of influenza. Others have expressed doubt concerning its value for that purpose. If aureomycin is not helpful, it may be well to try terramycin.

Answer.—Influenza, as it has been observed in recent years, occurs in explosive outbreaks, often simultaneously in widely scattered areas. The patient is usually ill from three to seven days and has symptoms of headache, fever, chills, malaise, cough, generalized aching, and weakness. The fatality rate has been low in late years and almost entirely confined to the older members of the population. The cause has been accepted as a filtrable virus of several types, A, A', and B. In 1950 and 1951, the A' type was most frequently identified. Since the clinical picture can resemble that of a number of other respiratory infections, a definite diagnosis can be assured only by isolation of the virus from the patient or by the significant rise in antibody titer in serum samples taken early and late in the course of the disease. There is no known therapeutic agent or antibiotic that is effective in the disease caused by any of the types of influenza virus; however, since the greatest part of the mortality results from bacterial complications in the respiratory tract, patients with a severe influenza-like illness should receive appropriate antibiotics.

## TREATMENT OF CALCINOSIS OF KIDNEYS

To the Editor:—*A man, 26 years of age, has a kidney condition, which dates back 15 years. The diagnosis is calcinosis of the kidneys. The blood creatinine is 9.4 mg. per 100 cc., and the urea nitrogen is 46 mg. per 100 cc. The specific gravity of the urine is 1,008. Albumin is 1+ or more. What treatment might help? What might he be given to increase the excretion of urinary solids? Would transplantation of kidneys be advisable?* *Thomas Moe, M.D., Moose Lake, Minn.*

Answer.—If a patient 26 years old has neither anemia nor hypertension with chronic renal disease, the prognosis would be fairly good in spite of elevated creatinine and urea levels in the blood. There is no known way to increase renal blood flow and filtration in such a patient, and the implantation of a human kidney, which never functions longer than two months, or use of an artificial kidney should be postponed until blood urea nitrogen is over 100 mg. per 100 cc., and the patient is clinically in uremia. Meantime, on a low protein diet with adequate salt and calories, well-being should be maintained for a long time.

## IRON AND BLACK STOOLS

To the Editor:—*Is it possible to administer iron orally in a dosage that will be effective in the treatment of secondary anemia and yet will not discolor the stools?* *Daniel Haffron, M.D., Elgin, Ill.*

Answer.—It is practically impossible to administer therapeutically effective doses of iron for secondary anemia without discoloring the stools.

## COLD DISINFECTION OF INSTRUMENTS

To the Editor:—*Is 5.25% sodium hypochlorite solution ("chlorox") of any value for cold sterilization of instruments in an office? What strength formaldehyde solution is advised?* *M.D., Ohio.*

Answer.—Cold disinfection of instruments is not recommended unless heat sources (electricity and gas) are not available. If chemical disinfectants are employed, instruments should previously be freed from organic matter. If the instruments are to be used on sensitive tissues, residual amounts of toxic chemicals must be removed.

Commercial sodium hypochlorite solutions contain 2 to 6% available chlorine and are supplied with varying degrees of alkalinity. The antibacterial activity of sodium hypochlorite diminishes with increased alkalinity, because it is dependent on the formation of hypochlorous acid and available chlorine. Solutions of sodium hypochlorite are instable, corrosive, and toxic; "stabilized" hypochlorites are less effective antibacterials. While the hypochlorites and other chlorine compounds are widely recognized as valuable agents for sanitizing processes, they are not recommended for the disinfection of the physician's instruments.

A number of satisfactory formulas of noncorrosive formaldehyde solutions have been proposed for chemical disinfection, including the following: 69% isopropyl alcohol, 1% methyl alcohol, 0.1% sodium nitrite, 0.8% sodium bicarbonate, and water in a quantity sufficient to make 100%. Formaldehyde solutions are subject to many of the limitations of other chemical disinfectants.

## TRANSMISSION OF DEAF MUTISM

To the Editor:—*A young man married a girl whose mother has a deaf mute sister. What are the chances of the condition being transmitted to his offspring?* *M.D., Illinois.*

Answer.—Deaf mutism is attributed to severe deafness before speech is acquired, so that the person does not learn to speak without specialized training. In fewer than half the cases the severe deafness is endogenous, due to an inherited defect in the cochlea of the inner ear. In such cases there are often other persons in the family with a similar condition. In more than half the cases the profound hearing impairment is exogenous: that is, it is due to a toxic or infectious agent in utero or in early infancy, which destroys or severely damages the hearing nerve. For example, rubella in the mother during the first three months of pregnancy not infrequently causes deafness in the child. If there are other persons in the family who were deaf mutes, the tendency could be transmitted from a normal hearing parent to her child. This possibility would be greatly enhanced if the mother and husband were cousins. If there are no other cases in the family, it is quite possible that the wife's sister suffers from an exogenous deafness, which would not be transmittable.

## REMOVAL OF ACNE SCARS

To the Editor:—*I would like information on the technique of carbon dioxide snow-ether application for the removal of acne scars from the face.* *Leo R. Hawkes, M.D., Preston, Idaho.*

Answer.—This treatment has few advocates, for the results are not satisfactory. One method of preparing the mixture is as follows: A piece of dry ice is pulverized with a mortar and pestle. Precipitated sulfur is added, and finally acetone is added in small amounts as the mixture is stirred into a smooth slush. The solution is applied to the skin with an applicator made of a ball of cotton firmly encased in gauze. The length of application and amount of pressure necessary must be determined by experience. Strong and prolonged pressure, besides causing pain, will produce a blister.

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The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

## PROSTATIC CANCER

To the Editor:—*Acute urinary retention suddenly developed in an ambulance driver, aged 65. He was hospitalized, and a suprapubic prostatectomy was performed. The pathological diagnosis was adenocarcinoma of the prostate gland. Several weeks later, bilateral orchiectomy was performed. After an asymptomatic interval of four years, severe sacral and sciatic pain and weakness of the lower extremities developed, especially while climbing stairs. At present, six years after prostatectomy and orchiectomy, he exhibits bilateral foot drop, 2+ pitting edema of the pretibial area, and absent patellar and ankle reflexes. A roentgenogram of the pelvis reveals discrete nodular lesions of the lower lumbar vertebrae and pelvic bones, with loss of trabeculae in involved areas. The following laboratory results were obtained. Serum phosphorus was 8.2 mg. per 100 cc.; acid phosphatase was 20.1 units, and alkaline phosphatase was 15.5 units. The urinalysis showed normal results. The hemoglobin was 60%; total proteins were 7.6 mg. per 100 cc.; albumin, 5.1 mg. per 100 cc.; and globulin, 1.8 mg. per 100 cc. The patient is bedridden and can move about only with assistance. 1. What results can be anticipated from the use of estrogens? 2. Can the level of phosphatase activity be used as a reliable index in judging therapeutic response? 3. Is roentgen ray therapy indicated? 4. What is the present status of nitrogen mustards and urethane as palliative treatment in these cases? 5. Is edema probably caused by obstruction of venous return by pelvic metastatic lesions?* *Cromwell C. Douglas, M.D., Norfolk, Va.*

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—1. Estrogen therapy may still be effective after orchiectomy and may produce a remission of tumor growth in this patient. An adequate trial would certainly be indicated. 2. The serum acid phosphatase level will serve as a fairly accurate index of the activity of the lesions outside the prostatic capsule. A fall to normal limits should be accompanied by clinical improvement, which, in itself, is probably the best index of response. A persistently high acid phosphatase level would indicate a poor prognosis. 3. Roentgen ray therapy directed to the bony lesions in the spine and pelvis is often helpful in the relief of pain, and its use might be of temporary benefit to this patient. 4. The use of nitrogen mustard and urethane has been abandoned by most clinics because of toxicity and poor response in the majority of patients. 5. Yes.

Answer.—The situation described seems to be of a terminal nature. The use of estrogens is definitely indicated, but, in view of the length of time since bilateral orchiectomy, it is questionable as to whether any response can be anticipated. The level of phosphatase activity will probably not be altered by the administration of estrogens. Roentgen ray therapy has proved to be of considerable value in many of these cases. Frequently, it reduces the pain, making the patient more comfortable. In a few instances, there has been some shrinkage of the metastatic tissue itself, but the greatest value lies in the relief of pain. As yet, there has been no definite report on the value of nitrogen mustards. Urethane has been used with variable results; its actual value is questionable. The foot drop, the pitting, the edema, and the various neurological manifestations are probably due to the metastatic lesions.

## IRRADIATION FROM TELEVISION RECEIVERS

To the Editor:—*Please discuss the irradiation hazard to men repairing television receivers.*

*James E. Cameron, M.D., Alexander City, Ala.*

Answer.—Large television units, such as those used in motion picture theaters, operate at a kilovoltage as high as 100. A large number of roentgen rays are produced. Such tubes are housed in a lead lined cabinet. There would be a definite hazard if repair men were exposed to the unguarded tube while it was in operation. In domestic television units there is no radiation hazard if the tubes are operating at normal voltages. If the voltages exceed the normal by 100 to 200%, long wave roentgen rays would be emitted, which constitute a hazard for a short distance from the tube.

## HYPERTROPHY OF BOTH BREASTS

To the Editor:—*A girl, aged 19, has marked "virginal type" hypertrophy of both breasts. She would like to have surgery done to remedy the condition. Please tell me whether subsequent pregnancies will have any adverse effect on her and/or the breasts, allowing for successful surgery and good cosmetic results.* *Henry Rosner, M.D., Brooklyn.*

Answer.—Mammary hypertrophy originates shortly after the onset of puberty, and progressive growth may last several months or several years. Growth usually ceases, but there may be a new spurt during pregnancy. Although some abnormal hormonal stimulus has been suspected, the cause of excessive growth is not known. If breast enlargement is so marked that it impedes normal activity, in spite of good support, or creates an emotional problem in the young woman, surgery may be indicated. Although for cosmetic reasons some physicians prefer to retain parts of the glands, most favor complete removal lest the remaining tissue subsequently become reactivated, especially during pregnancy. If some breast tissue is retained, pregnancy need not offer a serious problem, for engorgement can be suppressed by hormones.

## NASOPHARYNGEAL FIBROMA

To the Editor:—*I would like information regarding endocrine therapy for a 15-year-old boy who had a juvenile nasopharyngeal fibroma removed four weeks ago.*

*M.D., California.*

Answer.—The idea has developed, in some quarters, that nasopharyngeal fibromas tend to resolve at puberty and that estrogen therapy may be valuable; actually, however, these tumors usually do not disappear spontaneously at puberty, and estrogen therapy is of little value. The tumors occur primarily in the male and do not respond to irradiation. Operative removal is generally considered to be the treatment of choice, although, in some instances, the implantation of radium is effective. These tumors are not malignant, but they tend to recur. They are important clinically, because they are space filling lesions, and hemorrhages from them are common; in fact, hemorrhage is one of the common complications of operative removal. Enough bleeding may occur without treatment to cause a definite reduction in the concentration of hemoglobin in the blood.

## UNDESCENDED TESTIS

To the Editor:—*1. Is it possible for a testis to be absent? At an operation for unilateral undescended testis, search for the testis in the retroperitoneal and retropubic area failed to reveal any evidence of it. 2. Is it possible that the testis was so rudimentary that it could not be distinguished? There were vessels found in the inguinal canal leading down into the scrotum and upward to the retroperitoneal area attached to the peeled back peritoneum. 3. Do the internal spermatic vessels accompany the descent of the testis, or do the vessels and the testis develop and descend independent of each other?*

*M.D., New York.*

Answer.—1. Yes. The testis may be absent, although it should be borne in mind that an undescended testis may be found anywhere along the posterior abdominal wall up to the level of the kidney. 2. It is possible that the testis is not recognized, although, it usually is. 3. The internal spermatic vessels accompany the testis in its descent.

## EOSINOPHILIC GRANULOMA OF BONE

To the Editor:—*Please discuss the use of corticotropin (ACTH) or cortisone in the treatment of eosinophilic granuloma of bone.* *M.D., Pennsylvania.*

Answer.—Corticotropin (ACTH) and cortisone have been used in the treatment of localized eosinophilic granuloma of bone without notable results. These drugs have not produced remissions similar to those accomplished in so treating eosinophilic infiltration of the lungs (Loeffler's syndrome). Local excision, if feasible, and/or roentgen ray therapy continue to be the treatment of choice for localized eosinophilic granuloma of bone.

## SUBSTERNAL THYROID ADENOMA

To the Editor:—*What are the symptoms of substernal thyroid adenoma? Is it possible for adenoma of this type to cause symptoms without being large enough to be seen on a chest roentgenogram?* *B. A. Lucking, M.D., Helena, Mont.*

Answer.—Most substernal or intrathoracic goiters cause no symptoms unless they are toxic or unless they enlarge to such a degree that they cause compression of the trachea and great vessels at the level of the thoracic inlet. Pressure from the expanding goiter may manifest itself by causing dyspnea, distention of the cervical veins, with development of collateral circulation visible over the upper portion of the chest, and a peculiar cavernous sound when the patient breathes deeply with his mouth open. The roentgenogram is accurate in diagnosing the presence of thyroid adenomas that have entered the thoracic cavity. Lateral views and anteroposterior views should be obtained. It is fair to say that it is impossible for a thyroid adenoma to be large enough to cause pressure symptoms without being clearly visible on the roentgenogram. Displacement or compression of the trachea is regularly observed in large intrathoracic goiters; dysphagia is a rare symptom. Choking sensations are usually the result of globus hystericus and are not due to organic disease of the thyroid.

## MORPHINE INJECTION USING UNSTERILE TABLET

To the Editor:—*There is a widespread practice of placing an unsterile tablet of morphine or codeine in a sterile syringe, drawing up sterile water, and injecting without boiling after dissolving. I have never heard of an infection resulting from this practice. Could this be due to possible germicidal action of the morphine or codeine?*

*Robert S. Srigley, M.D., Hollis, Okla.*

Answer.—The concentration of morphine sulfate (15 mg.) dissolved in 1 ml. of water is not sufficient to have a germicidal effect by salt action. A 60 mg. dose of codeine sulfate in 2 ml. might have a germicidal effect. Large doses of heroin and milk sugar do not have a germicidal effect as is shown by the occasional transmission between addicts of malaria, staphylococcal infections, and other diseases.

The routine practice of placing an unsterile tablet in sterile water for injection probably does not produce local infection because of two factors. 1. The tablets are made by adding enough alcohol to lactose and opiate to form a workable triturate. The tablets are then pressed out and packaged without contamination. 2. Morphine and codeine have a strong whealing (persistent histamine-like) effect, which may increase the capillary circulation at the injection site. This would decrease the localization of injected pathogens.

## OPHTHALMOSCOPE

o the Editor:—*How much enlargement is obtained when using the +70 lens of an ophthalmoscope?*

*Walter Weinberger, M.D., Juniata, Altoona, Pa.*

Answer.—It is difficult to conceive of an eye with 70 D. of hyperopia. In most ophthalmoscopes, a +20 lens is the most convex, and 50 D. is the most that can be obtained with the Friedenwald ophthalmoscope; however, regardless of the power of the lens in the ophthalmoscope, the magnification will be about the same, if the lens corresponds to the amount of ametropia and if the observer is at the anterior focal plane of the subject's eye. When the emmetropic observer views the fundus of an emmetropic subject, parallel rays of light fall on the observer's retina, and the image formed is the same size as the object. The image on the observer's retina is projected into space to the point of clear vision (20-25 cm.). This distance varies with the observer and thus the magnification also varies. If this point is 22 cm. and the distance from the nodal point of the eye to the retina is 15 mm., then, by similar triangles, the magnification is found to be about 15×. In practice, the ophthalmoscope is usually in front of the anterior focal plane of the subject's eye. A lens weaker than the actual amount of hyperopia is used, so that the magnification is slightly less than that in emmetropia.

## CRACKS AT CORNER OF MOUTH

To the Editor:—*In regard to the query concerning the relationship of dentures and cracks at the corner of the mouth,* (J. A. M. A. **147**:1508 [Dec. 8] 1951) *I believe that amplification of the answer given would be helpful in obtaining a cure of the patient's affliction. Although well-fitting dentures will not produce cracks at the corners of the mouth, removal of these dentures on retiring at night frequently results in the accumulation of an excessive amount of saliva at the angles of the mouth. This moist environment frequently results in a combined streptococcic and monilial infection. The retention of the dentures overnight and the use of an antiseptic ointment, such as 5% ammoniated mercury ointment, after each meal and at bedtime might effect a cure in this patient who had insufficient benefit with vitamin therapy.*

*Bernard H. Winston, M.D.*
*324 Professional Building*
*11th and Grand Ave., Kansas City 6, Mo.*

To the Editor:—*In the reply to the letter concerning cracks at the corners of the mouth, as published in Queries and Minor Notes, Dec. 8, 1951, we feel that Dr. Hackett is dealing with a "pseudocheilosis," resulting from a decrease in the intermaxillary space or vertical dimension caused by the upper denture. Subjective comfort on the part of the patient is not indicative of a well-fitting denture. Because of accommodation the patient may be perfectly happy with a denture, even though the intermaxillary space is greatly decreased.*

*The lesions produced by a reduction of the vertical dimension are apparently the result of the upper lip overlapping the lower, producing a fold at the corners of the mouth.*

*Moisture from retained saliva in this fold, together with bacterial and mechanical irritation, produce the lesions. Most of these lesions disappear when new dentures are made and the correct vertical dimension is established.*

*Dr. L. W. Burket, in his book "Oral Medicine: Diagnosis, Treatment" (Philadelphia, J. B. Lippincott Company, 1946) noted that the lesions resulting from reduced intermaxillary space slant downward and outward from the corners of the mouth, whereas the true cheilosis, associated with ariboflavinosis, is more horizontal.*

*Edward C. Dobbs, D.D.S.*
*Leonard Rapoport, D.D.S.*
*University of Maryland*
*School of Dentistry*
*Baltimore 1, Md.*

To the Editor:—*The question of the relation of dentures to the presence of cracks at corners of the mouth is raised in* The Journal (**147**:1508 [Dec. 8] 1951). *I should like to point out that in an article entitled "Pseudo Ariboflavinosis" (Ellenberg, M., and Pollack, H.:* J. A. M. A. **119**:790 [July 4] 1942) *a definite relation was shown to exist between the presence of ill-fitting dentures and accompanying perleche and glossodynia; these lip and tongue lesions result from a mechanical defect whereby there is a shortened vertical dimension with overclosure. This leads to secondary fungus infection, usually from Candida albicans. When such a mechanical factor exists, no amount of vitamin therapy will produce any effect. Therapeutic response is achieved when the underlying malocclusion is corrected.*

*Max Ellenberg, M.D.*
*45 East 66th St., New York.*

## SPHENOPALATINE GANGLION NEURALGIA

To the Editor:—*In the reply to the query on sphenopalatine ganglion neuralgia in* The Journal (**148**:*161* [*Jan. 12*] *1952*), *the consultant makes the following statement: "From 1936 to 1947 not a single reference to this topic appeared in the* Archives of Otolaryngology." *This is not so. In January, 1942, the* Archives of Otolaryngology *published an article by Dr. Watt W. Eagle entitled "Sphenopalatine Ganglion Neuralgia."*

*Noah D. Fabricant, M.D.,*
*185 N. Wabash Ave.*
*Chicago 1.*

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# CLINICAL SIGNIFICANCE OF HEMOPTYSIS

*Herman J. Moersch, M.D., Rochester, Minn.*

The expectoration of blood is always an alarming experience for the patient and a matter of grave concern to the attending physician, because it may be the warning of serious disease. There is probably no symptom other than severe and acute pain that will stimulate a patient to seek medical aid as promptly as loss of blood for the first time from an unexplained source. When such bleeding occurs from the respiratory tract, the possibility of its being due to pulmonary tuberculosis or carcinoma of the lung is promptly suggested. It is unfortunate, indeed, that the severity of the bleeding is no guide as to the presence or absence of these diseases. It is imperative, therefore, that the patient with a history of hemoptysis have the benefit of thorough investigation to determine the cause of the bleeding.

It is essential first to determine that the bleeding does not originate from the oral cavity or nasopharynx. One should take similar precautions to be certain that the bleeding does not come from the gastrointestinal tract. Rarely, one encounters a malingerer who, for reasons known best to himself, gives a history of hemoptysis. In this case, the differential diagnosis can be extremely difficult.

## PRESENT STUDY

This report is based on a study that was made to determine the diagnostic significance of hemoptysis and the frequency with which it occurs in cases of pulmonary disease. In a period of slightly less than six months, Jan. 1 to June 10, 1950, inclusive, bronchoscopy was performed in 670 cases at the Mayo Clinic. A history of hemoptysis was obtained in 200 (29.8%) of these cases. In 1947, Abbott and Hopkins [1] reported that a history of hemoptysis was obtained in 421 (31.9%) of 1,316 cases in which the patients came under the observation of a thoracic surgeon.

Table 1 shows the causes of the hemoptysis in the 200 cases that form the basis of this report. This table does not necessarily furnish any indication of the cause of hemoptysis among the population as a whole. The present group of cases in many ways is selective, because bronchoscopy is not performed in many cases in which active pulmonary tuberculosis, pneumonia, mitral stenosis, and other types of heart disease produce hemoptysis. In spite of such shortcomings, the present study does afford a good index as to the importance of hemoptysis as a clinical symptom.

Of the 200 patients, 123 were men and 77 were women. The ages of the patients ranged from 16 to 74 years, the average age being 48 years. The average age of the patients with bronchogenic carcinoma was considerably greater than that of the patients with bronchiectasis. That one cannot place too much reliance on age alone in arriving at a diagnosis is evident from the fact that the average age of the patients with chronic bronchitis and of those with hemoptysis of indeterminate origin was the same as that of the patients with bronchogenic carcinoma. Hemoptysis occurred most frequently in the patients between 50 and 59 years of age. In the decades above and below this one, the incidence decreased progressively.

Malignant tumors of the bronchus, trachea, or lung were the most frequent causes of the hemoptysis. A malignant tumor of one of these structures was present in 59 (29.5%) of the 200 cases in which there was a history of hemoptysis. Bronchogenic carcinoma was the most frequent type of malignant lesion encountered in the 200 cases (table 2). Bronchogenic carcinoma was present in 91 of the entire group of 670 cases in which bronchoscopy was performed. It is interesting to note that hemoptysis occurred in 48 of the 91 cases of bronchogenic carcinoma.

In cases of bronchogenic carcinoma, hemoptysis tends to occur more frequently when the lesion arises in the main stem bronchus than when it arises in the peripheral

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From the Division of Medicine, Mayo Clinic.

Read before the Section on Diseases of the Chest at the One-Hundredth Annual Session of the American Medical Association, Atlantic City, June 14, 1951.

[1] Abbott, O. A., and Hopkins, W. A.: Clinical Significance of Hemoptysis: A Study of 1316 Patients with Chest Disease, J. M. A. Georgia 36: 360-371 (Sept.) 1947.

portion of the lung. Although the bleeding is frequently of recent origin in such cases, its duration is not always significant in the differential diagnosis, as is illustrated by the following case.

Case 1.—A 58-year-old man had been well until six years before he came to the clinic. He had begun to expectorate blood and had continued to do so daily for three months. Roentgenologic examination of the thorax had not disclosed any abnormality, and the bleeding had been thought to be due to the excessive use of tobacco. During the next five and a half years, he had had intermittent episodes of hemoptysis. During the three months before he came to the clinic, he had expectorated blood daily and had been aware of a gradually increasing stridor.

When the patient was observed at the clinic he was expectorating blood. Physical examination disclosed an inspiratory stridor, which was best heard when the patient was in the recumbent position. Roentgenologic examination of the thorax revealed rather pronounced localized thickening of the apex of the right lung and an adjacent intrapulmonary nodule (fig. 1). There was a triangular shadow of density in the right cardiophrenic angle. Cytological examination of the sputum revealed carcinoma cells. Bronchoscopy disclosed a tumor arising from the right bronchus at the level of the lower lobe, and biopsy revealed that the tumor was an adenocarcinoma grade 4.

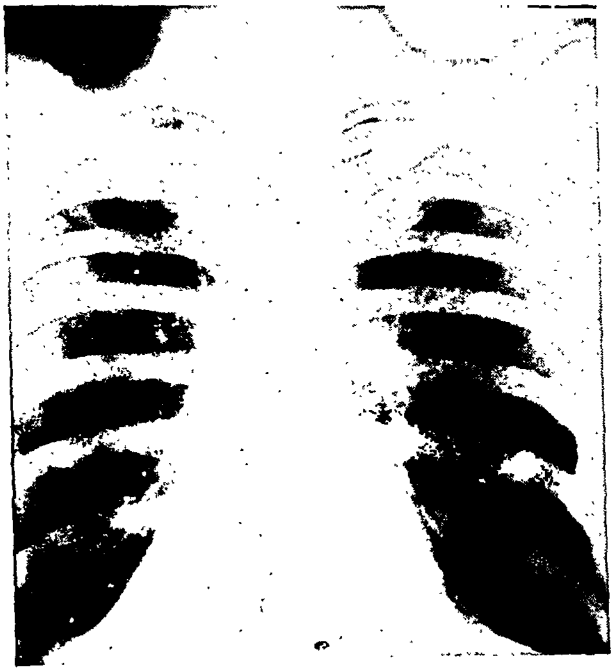

Fig. 1 (Case 1).—Bronchogenic carcinoma of the right lung.

In contrast with cases of bronchogenic carcinoma, in which bleeding usually has occurred for a relatively short time, in cases of adenoma of the bronchus the bleeding may occur for a much longer time. It has also been my experience that the bleeding in cases of adenoma of the bronchus may be more copious than in cases of bronchogenic carcinoma and that it is more often associated with evidence of suppurative infection. Adenoma of the bronchus occurs in a somewhat younger group of patients than carcinoma of the lung.

A metastatic tumor of the lung occasionally causes hemoptysis, as it did in three of the 200 cases. In fact, it may produce a clinical picture identical with that of bronchogenic carcinoma if the metastatic tumor involves a bronchus, and the diagnosis must rest on microscopic examination of tissue removed from the lesion. A malignant tumor of the trachea was present in two cases. This is an abnormally high incidence for this lesion, which is [illegible] uncommon. Alveolar carcinoma of the lung [illegible] in one case. Bronchiectasis was found to be the second most common cause of hemoptysis. It was present in 53 (26.5%) of the 200 cases in which there was a history of hemoptysis and in 97 of the 670 cases in which bronchoscopy was performed. The severity of the bleeding varied greatly. In one case, the bleeding was so resistant to treatment that the involved lobe of the lung was removed in order to control it. In the cases of bronchiectasis in which hemoptysis occurred, it invariably could be precipitated by overexertion, and it often was associated with acute infection of the respiratory system. The dry type of bronchiectasis especially can present an extremely difficult diagnostic problem, and in most cases a definite diagnosis cannot be made until bronchography has been performed.

Table 1.—*Causes of Hemoptysis in 200 Cases*

| Cause | No. of Cases |
|---|---|
| Malignant tumors | 59 |
| Bronchiectasis | 53 |
| Chronic bronchitis | 18 |
| Pulmonary tuberculosis | 11 |
| Pulmonary abscess | 10 |
| Middle lobe syndrome | 6 |
| Pneumonitis | 6* |
| Broncholithiasis | 4 |
| Indeterminate | 15 |
| Postoperative atelectasis | 2 |
| Bronchial stenosis | 2 |
| Foreign body in bronchus | 2 |
| Emphysema | 1 |
| Boeck's sarcoid | 1 |
| Pulmonary infarction | 1 |
| Bronchogenic cyst | 1 |
| Neurofibroma of thoracic wall | 1 |
| Thyroiditis | 1 |
| Injury of thorax | 1 |
| Amebic abscess of liver and bronchopleural fistula | 1 |
| Mitral stenosis | 1 |
| Mediastinal teratoma | 1 |
| Chronic granuloma of lung | 1 |
| Fibroma of bronchus | 1 |
| Total | 200 |

* In one case the pneumonitis was due to oil.

Table 2.—*Classification of Malignant Tumors*

| Type of Tumor | No. of Cases |
|---|---|
| Bronchogenic carcinoma | 48 |
| Metastatic carcinoma of lung | 3 |
| Adenoma of bronchus | 3 |
| Cylindroma of trachea | 2 |
| Carcinoma of trachea | 1 |
| Alveolar carcinoma of lung | 1 |
| Lymphosarcoma of lung | 1 |
| Total | 59 |

In the 53 cases in which bronchiectasis was associated with hemoptysis, the average age of the patients was 40 years; in the 44 cases of bronchiectasis in which there was no history of hemoptysis, the average age of the patients was 24 years. This apparent difference in the average age of the patients in these two groups of cases is chiefly attributable to the duration of the disease. Hemoptysis is prone to occur in cases of pulmonary abscess. In such cases, the bleeding usually is profuse.

Tuberculosis was found to be a less frequent cause of hemoptysis than it generally has been said to be by most authors. This difference can in some measure be explained by the fact previously mentioned, namely, that this study was based on a rather select group of patients, and by the fact that many patients who have active pulmonary tuberculosis associated with hemoptysis would not be referred for bronchoscopic examination. By the same token, figures on the relative frequency of hemoptysis in cases of tuberculosis and in cases of other diseases, obtained by studies of patients in tuberculosis sanatoriums, would be in error in the opposite direction. It is generally agreed that bleeding occurs less frequently in tuberculosis than in carcinoma of the lung. The possibility of tuberculosis must always be seriously entertained in any case of hemoptysis of unexplained origin.

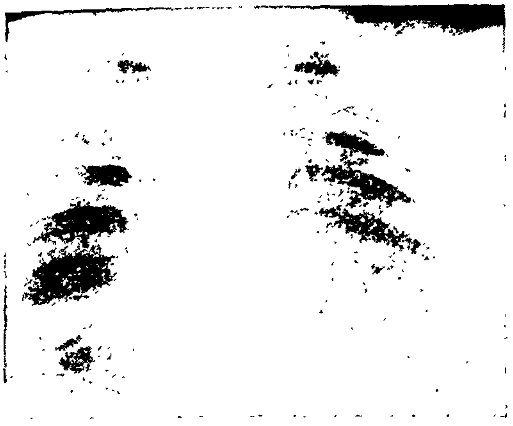

Fig. 2 (Case 2).—Elevation of the left half of the diaphragm.

Cardiovascular disturbances, such as mitral stenosis, pulmonary infarction, pulmonary hypertension, and aortic aneurysm, may give rise to hemoptysis, which may often present an extremely difficult diagnostic problem. It is needless to point out that the line of investigation that is to be employed in a case of hemoptysis must of necessity vary with the severity of the bleeding, the patient's general condition and age, and the various social and economic problems that are ever present. Unfortunately, the severity of the patient's hemoptysis is no index to the seriousness of the underlying disease.

A carefully taken history can often be an excellent guide as to the source of the bleeding and its underlying cause. It is surprising how accurate a patient can be in localizing the source of the bleeding. A history of expectoration of calcareous material or of the aspiration of a foreign body can well lead to the establishment of the correct diagnosis.

Case 2.—A 64-year-old man came to the clinic because of expectoration of blood, coughing, and a previous diagnosis of unresolved pneumonia. He had been perfectly well until seven months previously, at which time he had aspirated a piece of beef bone into his lung. He had coughed violently for 24 hours, and the coughing had then become less severe. Soon after this, the cough became productive of purulent material; it was worse in the morning and on retiring at night. Five months before the patient came to the clinic, a diagnosis of pneumonia had been made by roentgenographic examination of the thorax. He had been placed in a hospital. Antibiotics had produced improvement, but he had still continued to cough. A diagnosis of unresolved pneumonia and bronchiectasis had been made. About three months before the patient came to the clinic, he had started to expectorate blood. The hemoptysis had continued until he came to the clinic.

Physical examination of the thorax revealed increased dulness posteriorly at the base of the left lung and suppression of breath sounds in this area. Roentgenographic examination of the thorax revealed elevation of the left half of the diaphragm (fig. 2). Microscopic examination of the sputum did not disclose any acid-fast micro-organisms, and cytological examination of the sputum did not reveal any malignant cells. Bronchoscopic examination revealed a large piece of beef bone obstructing the right main stem bronchus at the level of the middle lobe. This was easily removed, and the patient's symptoms promptly subsided.

It is of interest to note that the patient localized the source of bleeding to the right side of the thorax, although he had been told that his difficulty was confined to the left side.

A careful physical examination of the thorax, a procedure that all too frequently is neglected, can be most rewarding in the study of hemoptysis. The character of respiration, the presence of stridor, the odor of the breath, and the contour and movement of the thoracic wall may furnish useful information. Clubbing of the fingers and the character of the sputum, especially after inversion of the patient, make the diagnosis of bronchiectasis a relatively easy one. A careful search should always be made for enlarged lymph nodes, particularly in the supraclavicular fossa; if such nodes are found, one should be removed for diagnosis. Although the microscopic examination of such a node usually reflects the character of the intrapulmonary disease causing the bleeding, this is not invariably so, as is illustrated by case 3.

Case 3.—A 62-year-old man first came to the clinic in 1947, because of a disease of the skin. A roentgenogram of the thorax made at that time revealed calcified lymph nodes in the hilum. Cultures of the sputum and gastric washings did not disclose Mycobacterium tuberculosis. In the next three years, the patient had recurrent attacks of hemoptysis but otherwise felt well. Because of the bleeding, he returned for reexamination. At that time, a roentgenogram of the thorax disclosed an infiltrating lesion in the apical segment of the upper lobe of the right lung (fig. 3). Microscopic examination of smears of the sputum did not reveal any tubercle bacilli, and cytological examination of the sputum did not disclose any carcinoma cells. The results of bronchoscopy were essentially normal, and examination of bronchial smears and washings did not disclose the presence of carcinoma cells or tubercle bacilli.

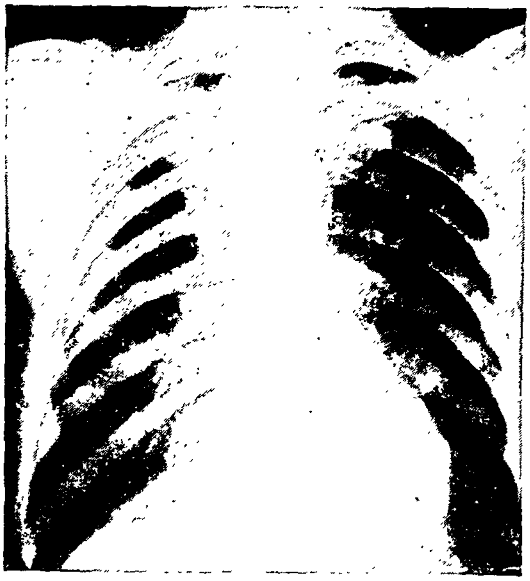

Fig. 3 (Case 3).—Infiltration of the upper lobe of the right lung in a patient with carcinoma of the lung.

Palpation of the right supraclavicular fossa revealed a firm lymph node, which was removed surgically. Microscopic examination of the excised lymph node revealed a granuloma that was undergoing necrosis. Material obtained from the lymph node was used to make bacterial cultures and to inoculate guinea pigs. Both of these diagnostic procedures indicated that the lymph node contained tubercle bacilli. The clinical diagnosis was pulmonary tuberculosis. The patient died a short time after the diagnosis was made. Necropsy disclosed that the pulmonary lesion was a bronchogenic carcinoma.

Roentgenologic examination of the thorax is one of the most valuable aids in the study of patients with hemoptysis and should be used routinely in all cases of this type. It may enable one to determine not only the nature of the lesion but also its site and often its operability. Great care, however, must be exercised in those cases of hemoptysis in which the roentgenogram is noninformative, for a normal roentgenogram of the thorax does not rule out the presence of a pathological lesion.

In a case of hemoptysis in which roentgenographic examination of the thorax discloses a circumscribed lesion, but other routine tests fail to establish the diagnosis, it is often difficult to decide how to proceed. This is illustrated by case 4.

CASE 4.—A 40-year-old man had been well until two days before he came to the clinic, when he suddenly had expectorated a pint of bright red blood. He had felt well otherwise and had not had any fever. General physical examination did not disclose any abnormality. The urine was normal, and both the erythrocyte and leukocyte counts were within normal limits. Examination of the sputum did not disclose any tubercle bacilli or malignant cells. Roentgenographic examination of the thorax disclosed an area of infiltration in the upper lobe of the right lung (fig. 4).

In the course of bronchoscopic examination, a small amount of blood was seen coming from the upper lobe of the right lung. Examination of smears and washings obtained from the bronchus of the right upper lobe did not disclose the presence of any tubercle bacilli or malignant cells. The sputum and bronchial washings were used to make cultures for tubercle bacilli and fungi. It then became necessary to decide whether to perform an exploratory operation immediately or to observe the patient clinically until the reports on the cultures were available. The patient was reluctant to undergo an exploratory operation until we had obtained further evidence regarding the nature of the lesion. The thoracic lesion disappeared completely in five weeks (fig. 4*b*).

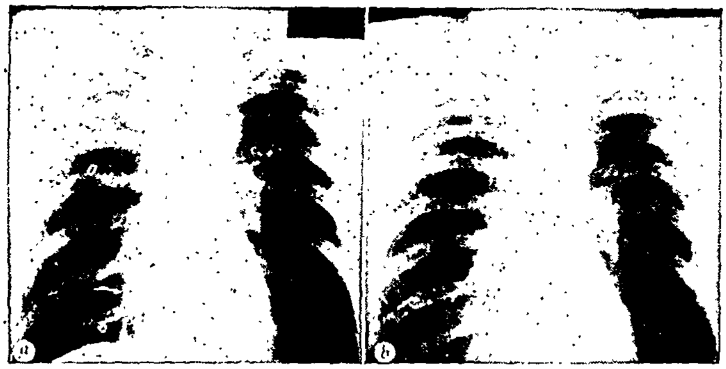

Fig. 4 (Case 4).—Infiltration of the upper lobe of the right lung (*a*) and disappearance of infiltration in five weeks (*b*).

The question always arises as to the best procedure to follow in any case of a solitary lesion of the lung with or without hemoptysis. Should such lesion be promptly explored, or should one wait for at least six weeks for the results of cultures and guinea pig inoculation, which should always be done with bronchial washings in cases of this type? Although no definite rule can be laid down, it would seem that, if the lesion has been known to be present for a considerable period of time, or roentgenographic examination shows evidence of calcification, one can well afford to observe the patient and await the results of these tests. In cases in which such evidence is lacking, it probably is best to perform an exploratory operation promptly, because of the high incidence of carcinoma in cases of this type.

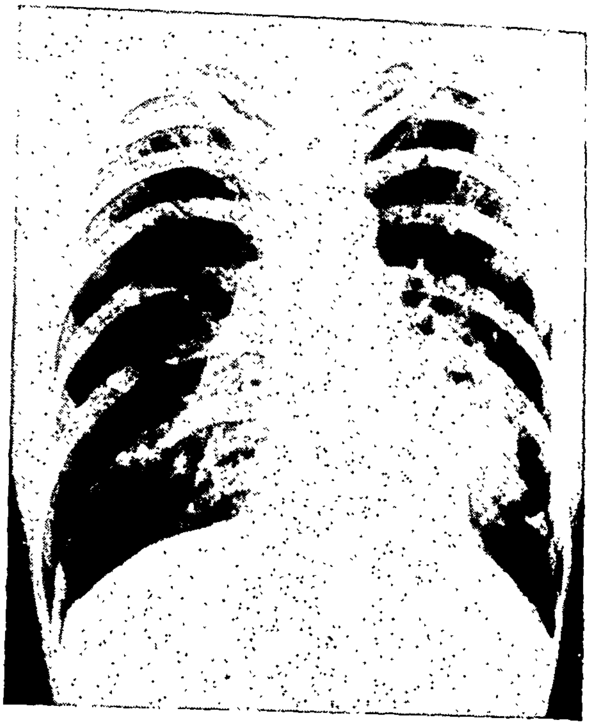

Fig. 5 (Case 5).—Abscess cavity in the lower lobe of the left lung in a patient with pulmonary tuberculosis.

Routine examinations of the sputum for tubercle bacilli should be carried out in every case in which there is a history of hemoptysis. It is not enough to examine the sputum directly for acid-fast organisms; the sputum should also be cultured. Culture of gastric washings for tubercle bacilli can often assist one materially in arriving at a correct diagnosis. It is not sufficient to examine the sputum and bronchial secretions for tubercle bacilli; they also should be examined cytologically for malignant cells. Although hemoptysis is rare in cases of fungous infection, this is a distinct possibility. Culture of sputum and bronchial secretions for fungi is always in order. Not only should culture for fungi be employed as a preoperative diagnostic procedure but it also should be used in the study of the surgical specimen, especially in cases of chronic granuloma or lesions of similar nature.

Bronchoscopy should be considered as a necessary diagnostic procedure in any case in which there is a history of unexplained hemoptysis. It often will reveal direct evidence of a lesion that will account for the bleeding, and it may enable the bronchoscopist to obtain a specimen of tissue or secretion directly from the lesion or site of involvement and thereby permit him to make a correct diagnosis, which otherwise might not be possible. This is illustrated by case 5.

CASE 5.—A 40-year-old woman had had a chronic cough for five years before she came to the clinic. The cough at times had been productive of mucopurulent sputum and masses of blood. The cough and expectoration had been aggravated by change of position. The patient's general condition was excellent; however, since she was at the clinic with her sister, she decided it might be a good idea to have a general examination.

Physical examination revealed increased dulness to percussion posteriorly at the base of the left lung and suppression of breath sounds over this area. Roentgenologic examination of the thorax revealed an abscess cavity in the lower lobe of the left lung (fig. 5), which contained fluid. Microscopic examination and cultures of the sputum did not reveal any tubercle bacilli. Cytological examination of the sputum did not disclose any malignant cells. On bronchoscopic examination, the posterior basilar division of the lower lobe of the left lung was found to be obstructed. Microscopic examination of a specimen removed from he site of obstruction revealed a chronic granuloma, which probably was due to tuberculosis. Cultures of secretions obtained directly from the site of obstruction produced tubercle bacilli. The lower lobe of the left lung was removed, and examination of the surgical specimen confirmed the diagnosis of tuberculosis.

In cases of hemoptysis of unexplained origin, it is often dvisable to perform bronchoscopy while the bleeding is present, in order to trace the blood to its point of origin. Not infrequently, by this procedure one will detect a mall lesion, which otherwise might not be detected.

Bronchography is a most useful procedure in cases of unexplained bleeding. It is by far the most valuable diagnostic method in the study of bronchiectasis. Its use hould always be considered in any case of unexplained emoptysis in a young person. It is best to postpone ronchography until the bleeding has subsided, as blood eft behind in the bronchial tree might easily convey a alse impression of the true state of affairs.

In 15 of the 200 cases in which there was a history of hemoptysis, the cause of the bleeding was classified as ndeterminate (table 1). In four of the 15 cases, definite esions were present in the lung. The patients in these ases were advised to undergo an operation, but they reused to do so because the exact nature of the lesion could ot be established preoperatively. I feel that a malignant esion probably was present in two of these four cases. n the 11 remaining cases, roentgenographic examination f the thorax did not disclose any evidence of a pulmonary lesion. In 7 of the 15 cases, bronchography was not performed for various reasons. Consequently, the presence of bronchiectasis could not be excluded definitely in these cases. In the remaining cases, various diagnostic procedures failed to disclose any cause for the hemoptysis. Although sufficient time has not elapsed to permit one to make a definite statement regarding the prognosis in these cases, it seems reasonable to assume that a serious lesion will not develop.

## SUMMARY

A history of hemoptysis was obtained in 200 (29.8%) of 670 cases in which bronchoscopy was performed. The two lesions that were encountered most frequently in the 200 cases were malignant tumors of the trachea, bronchus, or lung and bronchiectasis. A malignant tumor of the trachea, bronchus, or lung was present in 59 (29.5%) of the 200 cases. Whenever a patient more than 40 years of age gives a history of hemoptysis, the presence of a malignant tumor should be suspected.

Bronchiectasis was present in 53 (26.5%) of the 200 cases in which there was a history of hemoptysis and in 97 (14.5%) of the 670 cases in which bronchoscopy was performed. In the 53 cases in which bronchiectasis was associated with hemoptysis, the average age was higher than in the cases in which bronchiectasis occurred without hemoptysis. (This apparent difference in the average age in the two groups of cases is largely attributable to the duration of the disease.)

In 17 (7.5%) of the 200 cases, the cause of the hemoptysis could not be determined. In cases in which a thorough clinical investigation, including roentgenographic examination of the thorax, fails to disclose any cause for the hemoptysis, there is an excellent chance that a serious pulmonary lesion will not develop subsequently. In this group of 200 cases, the hemoptysis occurred most frequently in the sixth decade of life. One hundred twenty-three of the patients were men, and 77 were women. The severity of the bleeding gave no indication of the nature of the underlying lesion.

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# CARCINOMA ARISING IN ADENOMAS OF COLON AND RECTUM

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*and*
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One of the more difficult problems facing proctologists, abdominal surgeons, and pathologists is the question of proper treatment for adenomas in which carcinomas have arisen that have not yet invaded the muscular bowel wall. The decision must be made as to whether it is safe to treat these lesions by local removal or whether a radical resection should be performed immediately. In this paper, we hope to settle this problem at least partially.

In 1948, Scarborough and Klein [1] reported a study of 458 patients with polypoid disease of the colon and rectum. In this series there were six pedunculate adenomas of the colon for which bowel resection had been performed and in which areas of invasive carcinoma were found. Although there was no invasion of the pedicle in any case, there were regional lymph node metastases in three of the operative specimens. This report raised the question as to whether radical surgery should be performed for all adenomas showing microscopic malignant change. Since it had been the impression at Memorial Center that local excision of pedunculate adenomas, even with malignant change, constituted safe and adequate treatment, the present study was undertaken.

From 1937 to 1949, inclusive, there have been 265 cases of large-intestinal adenomas at Memorial Center.

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This investigation was aided by a grant from the estate of Florina Lasker.

From the Colon and Rectum Service and Pathology Laboratories of Memorial Center for Cancer and Allied Diseases.

Read before the Section on Gastro-Enterology and Proctology at the One-Hundredth Annual Session of the American Medical Association, Atlantic City, June 14, 1951.

[1] Scarborough, R. A., and Klein, R. R.: Polypoid Lesions of the Colon and Rectum, Am. J. Surg. 76: 723-727, 1948.

In all cases there was adequate material for reliable pathological study, and the patients received definitive treatment. In 39 of these cases, there were adenomas that showed definite carcinomatous change. These 39 cases comprise only clinically benign adenomas in which foci of carcinoma were found on pathological examination.

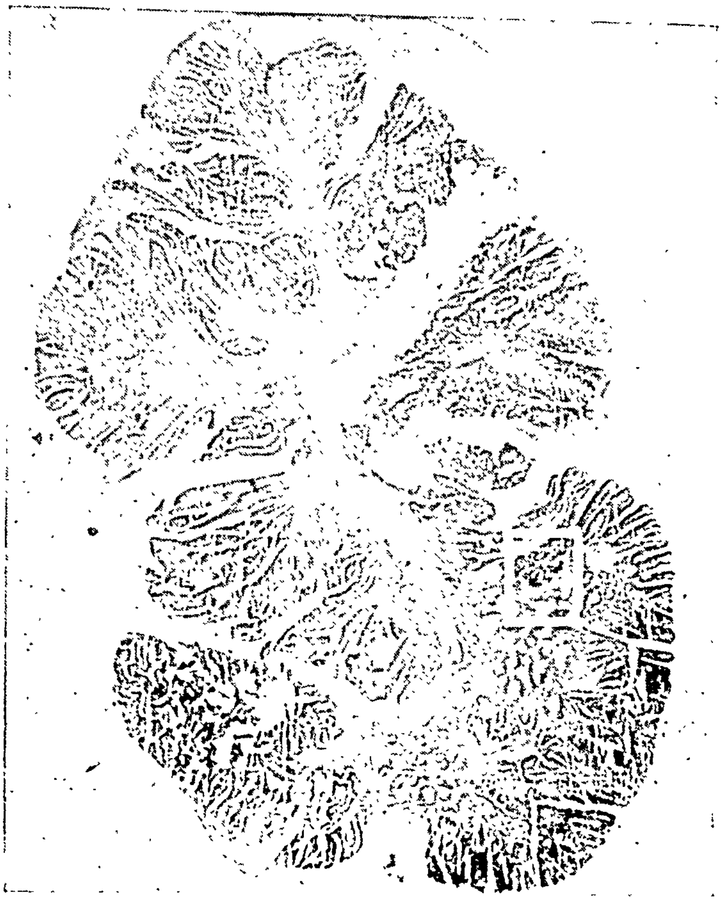

Fig. 1.—Pedunculate adenoma of sigmoid colon with in situ carcinoma. In the upper central portion the glandular elements have undergone carcinomatous change.

They do not include clinically apparent cancers that invaded the muscular bowel wall and in which remnants of benign adenomatous structure were found subsequently; also not included are papillary adenomas and adenomas showing only atypical epithelial hyperplasia.

## INCIDENCE

Of the patients studied, 22 were men, and 17 were women, with approximately the same incidence in each of colonic and rectal cancer. The age incidence break- of malignant adenomas is as follows. There were 4 nts in the 31 to 40 year age group, 5 in the 41 to 50 oup, 17 in the 51 to 60 group, 8 in the 61 to 70 group, and 5 in the 71 to 80 group. The youngest patient was 33 years old; the oldest was 76 years old; and the average age was 56.6 years. Of the entire series of 265 cases of adenomas, information on age was obtainable in 253. Of 164 patients in this series in whom the tumors of the large intestine were histologically benign adenomas, the average age was 51.6 years. Thus, the patients with adenomas showing malignant change were, on the average, five years older than those with benign lesions. Furthermore, the average age of the 39 patients is approximately the same as that of patients with fully developed colonic and rectal cancer. These figures are at variance with the average of 62.9 years for patients with papillary adenomas (villous tumors) previously reported by us [2]; however, because of the small number of cases under present consideration, undue significance must not be attributed to these variations. Information regarding family history of cancer was not available for 1 patient, and for 17, there was no cancer history. For the remaining 21 patients, there was a history of cancer in the immediate family; in 8 instances (and possibly in 2 others) the cancer had occurred in the gastrointestinal tract.

## ANATOMIC DISTRIBUTION

In 20 cases, there was a single adenoma, and in 19 cases, multiple adenomas were found; however, in only 6 of the group of patients with multiple adenomas was malignant change found in more than a single adenoma. The anatomic distribution of adenomas showing carcinomatous change is as follows. In the 33 cases of cancer in only a single adenoma, the adenoma was situated in the rectum in 14 cases, in the sigmoid colon in 18 cases, and in the descending colon in 1 case. In the six cases in which the cancer appeared in multiple adenomas, the lesions containing cancer were distributed as follows, one case each: sigmoid colon, sigmoid and transverse colon, rectum and descending colon, rectum and ascending colon, and sigmoid, descending, and transverse colon. In the 19 cases of multiple adenomas, the number of adenomas varied from 2 to more than 10 (8 cases); in some of the latter almost the entire colonic mucosa was involved.

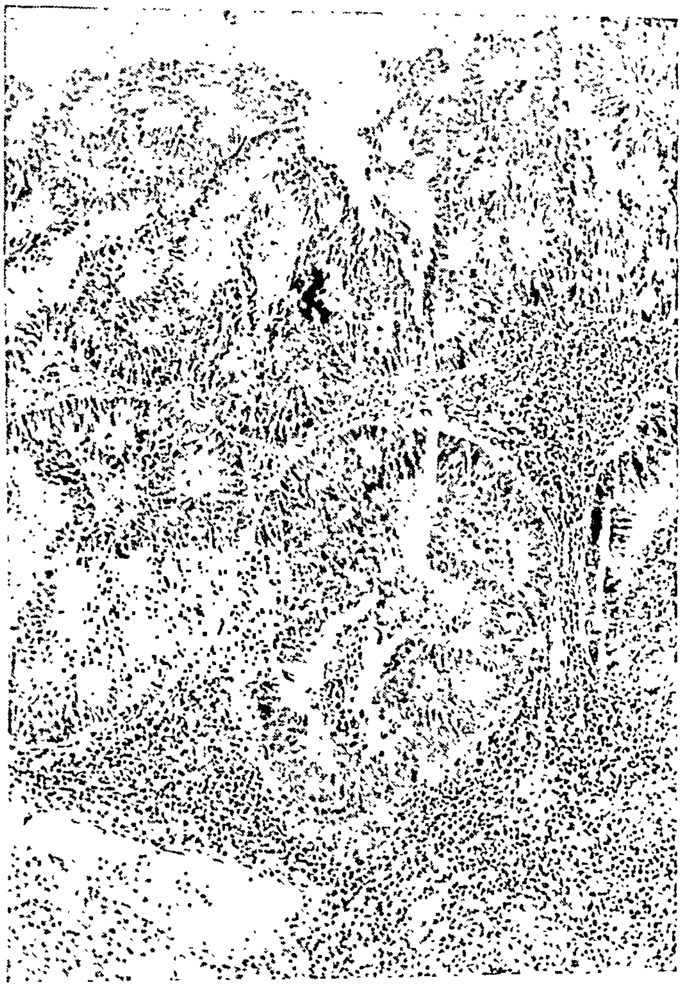

Fig. 2.—Higher power view of area indicated by rectangle in figure 1. Malignant transformation is obvious, but there is no demonstrable penetration of the basement membrane.

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2. Sunderland, D. A., and Binkley, G. E.: Papillary Adenomas of the Large Intestine: A Clinical and Morphological Study of 48 Cases, Cancer 1: 184-207, 1948.

### PATHOLOGICAL CONSIDERATIONS

Many workers refuse to recognize a lesion as carcinoma until there is actual invasion through the muscularis mucosae; others, in direct contrast, regard adenomas as malignant whenever there is multiplicity of nuclear layers within the adenomatous glands; our viewpoint is intermediate. If one regards stratification of nuclei as an indication of malignant change, there would be few true adenomatous polyps that would escape the diagnosis of cancer; on the other hand, if invasion through the muscularis mucosae is considered a necessary criterion, one would be forced to the insecure position of maintaining that cancer is not malignant, in spite of typical malignant structure, until it actually begins to invade. In assuming this viewpoint, it is logical to deny the existence of in situ epidermoid carcinoma of the cervix, noninfiltrating epidermoid cancer of the bladder, and noninfiltrating duct cancer of the breast, all of which are generally recognized to be pathological entities. Therefore, we make a diagnosis of in situ carcinoma in an adenoma if the structure of some areas is identical with that seen in carcinoma actually invading the bowel wall, but, in the particular adenoma under consideration, there is no demonstrable penetration of the basement membrane. That our viewpoint is reasonable may be judged by figures 1, 2, and 3.

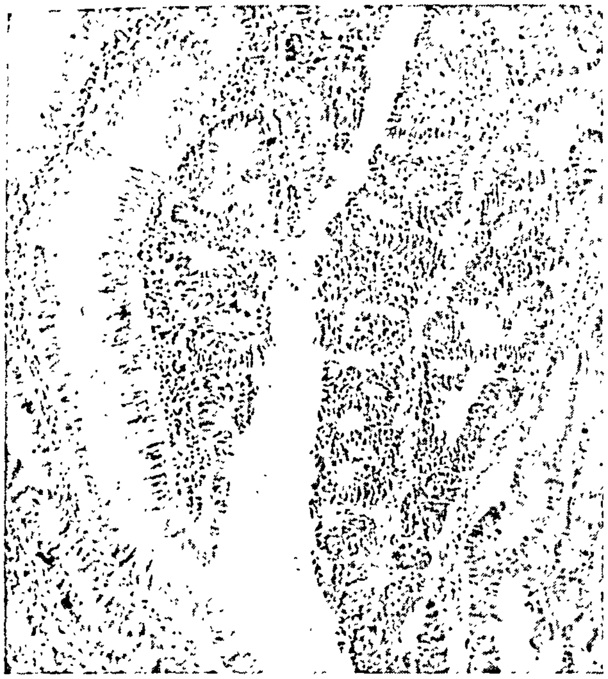
Fig. 3.—View of area indicated by lower right rectangle in figure 4, showing in situ adenocarcinoma.

For the purpose of this study, we have divided the carcinomas occurring in these adenomas into in situ and invasive groups. The latter designation is reserved for those that have broken through the basement membrane and are invading the framework of the polyp, with or without complete penetration through the muscularis mucosae. If any doubt existed as to penetration of the basement membrane, the lesion was classified as in situ. Of the cancers studied, 23 were in situ, and 16 were definitely invasive. Five of the invasive carcinomas had penetrated the muscularis mucosae completely; five had invaded it partially; in the remaining six, the invasion of the framework of the polyp appeared to be superficial to the muscularis mucosae. Examples of invasive carcinomas are shown in figures 4 and 5.

In 24 cases, the adenomas were pedunculate; in 15 cases, they were not; all the adenomas had constricted bases and were movable. The diameter of the pedunculate adenomas varied from 0.4 to 8 cm.; whereas the diameter of the nonpedunculate adenomas varied from 1 to 7 cm. Of the 24 pedunculate lesions, 16 measured 2 cm. or less in diameter as compared to 8 of the 15 with flat attachment that measured 2 cm. or less. In 9 of these 39 cases, there was an independent invasive cancer of the large intestine, apart from that found in the adenoma. In only one of these cases was there definite microscopic evidence of residual benign adenoma in the independently occurring carcinoma.

### TREATMENT AND RESULTS

Adenomas of the large bowel are best treated by complete removal. As we shall discuss later, local removal has resulted in cure, in our experience, although adenomas may be expected to develop in other locations in subsequent years.

Treatment of adenomas of the rectum is a comparatively simple procedure, since these lesions are accessible to inspection and local removal. They may be removed by fulguration en masse, local excision with scalpel and suture of mucosa, clamping and ligation of base or pedicle before removal, and excision by means of the cautery snare. Fulguration or desiccation en masse, although not the best method of treatment, is employed extensively by others. The objectionable feature of this method is the destruction of cells, which prevents histological examination of the tumor; moreover, perforation,

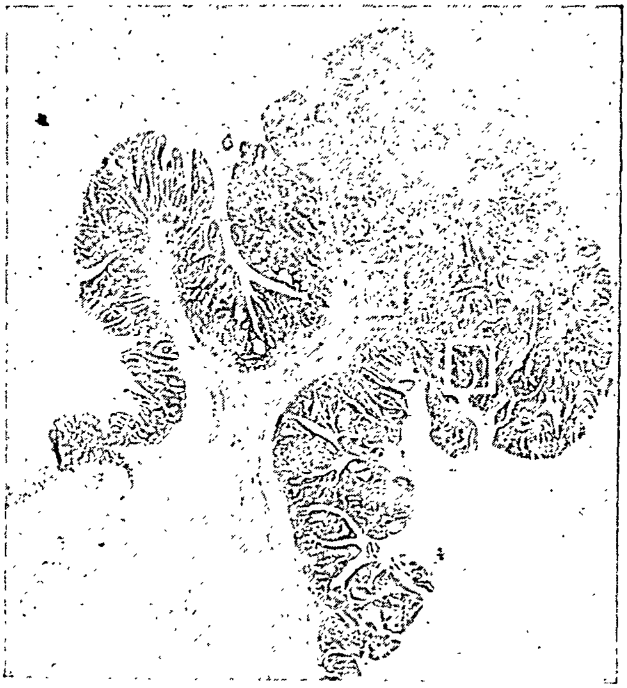
Fig. 4.—Adenoma of sigmoid colon, with distal portion replaced by infiltrating carcinoma. Although not pedunculate, the lesion is projecting; it was removed by segmental resection, and the regional lymph nodes contained no metastases.

with peritonitis, has occasionally followed this method. We employ fulguration only for the minute lesions that cannot be removed by any other means and for the occasional small tags remaining after snare removal. Local excision and suture produce good results. This method is difficult to carry out when the lesion is high in the rectum. Clamp and ligation is occasionally the method of choice for the broad pedicle of a large adenoma in the midsection and lower section of the rectum.

Our choice of routine method for removing adenomas of the rectum and lower sigmoid is the cautery snare. The technique of cautery snare removal of polyps has been described elsewhere and need not be repeated in detail. Experience has shown that scopes of different lengths and diameters are necessary. A large operating scope, 18 cm. long and 3 cm. in diameter, is useful for removing polyps in the rectal ampulla, whereas a long, narrow sigmoidoscope is necessary for some of those in the lower colon. The use of caudal anesthesia and proper positioning of the patient facilitates the operation. Snare wire of small diameter is preferred for routine use. Small wire snares are easily placed about either the pedunculate or sessile lesions, and there is a minimal amount of damage to adjacent tissue when the wire is tightened. We prefer a coagulating current to prevent bleeding and rely on tightening the snare to cut through tissue. The pedicle should be severed close to the bowel wall, and, when dealing with the nonpedunculate variety, the wire should include all tissue about the polyp down to the circular muscle fibers of the wall. The most satisfactory removal excises a circular area of mucosa beyond the polyp and leaves the muscle fibers exposed.

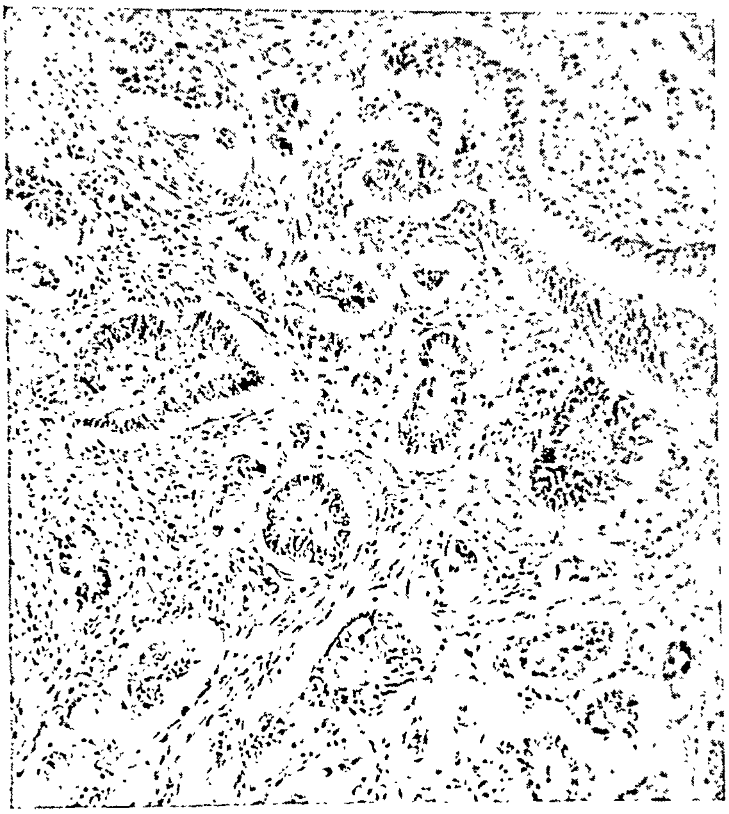

Fig. 5.—View of area indicated by upper left rectangle in figure 4, showing obviously invasive adenocarcinoma.

Treatment of adenomas of the colon is not difficult but necessitates laparotomy. Patients should be afforded appropriate preoperative preparation, the chief feature of which is a clean, empty bowel for inspection. This can be achieved by the administration of magnesium sulfate (epsom salt) in sufficient quantity to produce five to eight stools daily during a five day period and 2 oz. (56.70 gm.) of castor oil 20 hours before operation.

Adenomas previously found roentgenographically can usually be located by palpation. Routine colotomy, once the adenoma is located, consists of an incision, 4 to 5 cm. in length, through the longitudinal band near the polyp. The pedicle is ligated near the base and divided. The incision is closed with a continuous fine absorbable surgical (catgut) suture in the mucosa and a layer of interrupted silk sutures through serosa and muscularis.

Any operation for adenomas of the colon must include a careful examination of the colon with a sigmoidoscope for additional adenomas in the remainder of the colon. If found, these should be removed. Instrumental examination of the colon and snare removal of polyps is easily carried out when the bowel is free of fecal material. The operator will require, in addition to the usual laparotomy instruments, a sigmoidoscope 25 to 30 cm. in length and 2 cm. in diameter, the instruments necessary for cautery snare removal, and a long suction tube to keep the field clean. The entire colon can be inspected through two or three incisions into the bowel. When an associated invasive cancer is present, the treatment is the same as that for the primary carcinoma.

The results of treatment in the 39 cases under consideration are given in tables 1 and 2. Three patients were lost to follow-up one month to two years following removal of their adenomas. When last seen, they had had no recurrence. One patient, who had a subtotal colectomy for disseminated adenomatosis, is still alive four and one-half years after the operation but has residual adenomas in the rectal stump. Another patient, who had incomplete removal, had residual adenoma when last seen, but he subsequently had it removed by another surgeon. For 15 patients, more than three years have elapsed since their operation. All except the nine patients with independent cancers and the two patients with disseminated adenomatosis were treated only by some form of local removal.

## SUMMARY AND CONCLUSIONS

The problem of treating of adenomas of the colon and rectum is rapidly increasing in importance because of the greater number being found today; this is the result of the growing realization of their potentially serious nature. Colvert and Brown [3] concluded that rectal polyps, when malignant, are usually of a low grade of malignancy. We disagree for two reasons. In the first place, among the 265 cases of this series, there were 10 independent cancers of large intestine (including the one in the group of 39 cases previously mentioned) in which definite microscopic evidence of residual benign adenoma was found. Two of these cancers were of the colloid type; the remainder were adenocarcinoma, grade 2. Four of the cancers had not penetrated the entire thickness of the bowel wall; three had invaded the adjacent mesentery; and three had metastasized to regional lymph nodes at the time of removal. Three of the patients died of cancer less than three years after resection, and another patient had recurrent cancer six months postoperatively. In the second place, in a previous study made by us of the villous or papillary type of adenoma, it was found that in some of these cases cancers of the most malignant variety did occur [2] in the tumors.

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[3] Colvert, J. R., and Brown, C. H.: Rectal Polyps: Diagnosis, 5 Year Follow-Up, and Relation to Carcinoma of the Rectum, Am. J. M. Sc. 215: 24-32, 1948.

In spite of the foregoing information, it is our opinion that cancer arising in a simple projecting adenoma that does not yet show lymphatic infiltration of the submucosa can safely be regarded as a local problem; however, we do believe that these are potentially malignant carcinomas, and, if they remain untreated, they will eventually invade, metastasize, and cause death. In our experience, no adenoma containing focal cancer has recurred or metastasized after local removal; however, our series is small, and the follow-up period for many patients is short. Thus, only tentative conclusions can be made.

The results of this investigation are comparable to those reported by McLanahan, Grove, and Kieffer [4] in their analysis of 38 cases of adenomas with malignant change that were confined to the rectum or lower sigmoid colon. All were removed by conservative local measures. The authors stressed the fact that most of these patients can be cured by complete local eradication of the adenoma. In their series, adenomas recurred in 10 cases, and in 5 of these the recurrent lesions were definitely carcinoma; however, in some of the original tumors, there had been actual invasion of the bowel wall, and no distinction was made between simple and papillary adenomas.

Our present knowledge, although incomplete, confirms our previous belief that cancer that has arisen in a simple adenoma and has not yet invaded the submucous lymphatics can be safely removed from the rectum by cautery snare and from other locations in the colon by simple colotomy and division and ligation of the pedicle or by snare removal, without fear of subsequent recurrence or metastasis. If at the time of laparotomy for a colonic adenoma there is any suspicion that invasive cancer is present in the base, a wide bowel resection and lymph node dissection should be done. Of course, any patient who has had an adenoma removed should be carefully followed with a view to detection of new adenomas.

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TABLE 1.—*Results of Treatment of Patients Without Cancer Independent of Adenomas*

| Site and Treatment Method | Living Without Disease Less Than 3 Yr. | Living Without Disease 3-8 Yr. | Living with Disease | Died of Cancer | Lost to Follow Up | Total |
|---|---|---|---|---|---|---|
| Rectum | | | | | | |
| Cautery snare (complete) | 3 | 3 | 0 | 0 | 2 | 8 |
| Cautery snare (incomplete) | 0 | 0 | 1 | 0 | 0 | 1 |
| Surgical excision | 1 | 0 | 0 | 0 | 0 | 1 |
| Sigmoid | | | | | | |
| Cautery snare (complete) | 2 | 7 | 0 | 0 | 1 | 10 |
| Colotomy and excision | 3 | 0 | 0 | 0 | 0 | 3 |
| Segmental excision | 1 | 0 | 0 | 0 | 0 | 1 |
| Rectum and Sigmoid | | | | | | |
| Cautery snare plus colotomy and excision | 1 | 1 | 0 | 0 | 0 | 2 |
| Cautery snare alone | 0 | 2 | 0 | 0 | 0 | 2 |
| Disseminated Adenomatosis | | | | | | |
| Colectomy | 0 | 0 | 1 | 0 | 0 | 1 |
| Polypectomy and colectomy | 1 | 0 | 0 | 0 | 0 | 1 |
| Total | 12 | 13 | 2 | 0 | 3 | 30 |

TABLE 2.—*Results of Treatment of Patients With Cancers Independent of Adenomas**

| Treatment (Various Sites) | Living Without Disease Less Than 3 Yr. | Living Without Disease 3 Yr. or More | Living with Disease | Died of Cancer | Lost to Follow-Up | Total |
|---|---|---|---|---|---|---|
| Abdominoperineal resection | 3 | 2 | 0 | 1 | 0 | 6 |
| Right colectomy † | 0 | 0 | 0 | 1 | 0 | 1 |
| Segmental resection † | 0 | 0 | 1 | 0 | 0 | 1 |
| No treatment of cancer † | 0 | 0 | 1 | 0 | 0 | 1 |
| Total | 3 | 2 | 2 | 2 | 0 | 9 |

* Primary treatment was for independent cancer. † In addition, adenoma was removed by cautery snare.

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4. McLanahan, S.; Grove, G. P., and Kieffer, R. F., Jr.: Conservative Surgical Management for Certain Rectal Adenomas Showing Malignant Change, J. A. M. A. **141**: 822-825 (Nov. 19) 1949.

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**Intraocular Foreign Bodies.**—The removal of an intraocular foreign body is never a true emergency. A foreign object eventually becomes embedded in the ocular tissues, it is true, but the process does not occur immediately, and there is ample time for all necessary diagnostic measures and for bringing the patient to a properly equipped hospital and a properly qualified eye surgeon. Patients with intraocular foreign bodies are preferably transported recumbent, and always with both eyes covered. First aid measures . . . should be limited to simple cleaning of the external eye and the application of sterile bandages.—William B. Clark, The Management of Acute Ocular Injuries, *The Journal of the Medical Association of the State of Alabama*, January, 1952.

# ATROPHIC PYELONEPHRITIS VERSUS CONGENITAL RENAL HYPOPLASIA

*John L. Emmett, M.D., J. Jose Alvarez-Ierena, M.D.*
*and*
*John R. McDonald, Rochester, Minn.*

There has been much discussion in the urological and pathological literature regarding the unilateral, abnormally small kidney. Many confusing terms have arisen to describe it, such as atrophic kidney, contracted kidney, atrophic pyelonephritis, congenital hypoplasia, infantile kidney, aplastic kidney, and agenesia. Some statements in the literature tend to leave one with the impression that these various terms describe separate clinical and pathological entities that may be distinguished easily clinically, urographically, or by gross or microscopic examination. The two descriptive terms that have become most widely used are "chronic atrophic pyelonephritis" and "congenital hypoplasia." Contrary to general opinion, it has been our impression that it is usually difficult, if not impossible, to distinguish these two entities, if in reality two such separate entities actually exist.

A cursory review of the literature will reveal the great confusion that exists on this subject. Most standard American textbooks on urology base their classification and descriptions on an article written by Gutierrez [1] in 1933. In a review of the literature and a presentation of eight personal cases, Gutierrez attempted to make a classification of the congenitally small hypoplastic kidneys and to distinguish them from renal "atrophy" or "contraction" due to acquired causes. His classification suggested inclusion of three groups: (1) congenital hypoplasia, (2) renal aplasia, and (3) complete absence of a kidney (other term, complete agenesia).

Gutierrez' description of congenital hypoplasia states that the kidney is small and infantile in type but usually can be recognized grossly as a kidney. Excretory function is present (though usually diminished), and medullary and cortical substance is present. (Apparently on the basis of one case observed personally, he also suggested that there may be absence of pyramidal tissue. This subject will be discussed later.) There may be a rudimentary or hydronephrotic pelvis and calyces, which may be "bizarre" in size or position or even absent. The ureter is patent. Microscopic examination shows normal or rudimentary glomeruli and tubules." Renal aplasia, on the other hand, shows no gross evidence of a true kidney, no pelvis, absence of a true renal pedicle, and an incompletely developed ureter that is not patent. There is no excretion of urine and no function. "Histologic section of the supposed renal mass reveals glomeruli and tubules showing arrest of development of the renal organ." As for the third group—congenital absence of one kidney (other term, complete agenesia)—Gutierrez stated that no kidney or ureter is present and no evidence of glomeruli or tubules microscopically. In nearly all cases the ipsilateral adrenal and the corresponding side of the vesical trigone are absent.

There is no doubt that this extensive and well-written article has done much to call attention of the profession to the hypoplastic or infantile kidney that cannot support life. The main thesis of the paper was to warn surgeons against removing a kidney unless they were sure that the opposite kidney was normal. There is one serious error in the paper, however: the lack of emphasis given to acquired causes of renal atrophy, such as obstruction and infection, which must be taken into consideration in differential diagnosis. That the possibility exists is apparent in Gutierrez' statement:

> It is very important, therefore, that the differential urographic diagnosis of the condition be borne in mind, since this abnormal type of kidney [congenital hypoplasia] may readily be confused with the presence or the association of other different types of lesions, such as are frequently observed in the acquired or secondary atrophy of one kidney, due to tuberculosis, tumor, calculous diseases, pyelonephritis or hydronephrosis.

Gutierrez also mentioned that the congenital hypoplastic kidney also can be the site of pyelonephritis, but he failed to mention how one can decide which is the primary cause of the "atrophy": infection and scarring, or congenital maldevelopment. As a matter of fact, of the two cases that he reported (which he observed personally) under the heading of congenital hypoplasia, one appears to be a case of definite hydronephrotic atrophy with pyelectasis and absence of renal pyramids. (This no doubt is the reason for his suggestion that "absence of renal pyramids" is found occasionally in congenital hypoplasia.) The condition in the other case, from the microscopic description, no doubt is one that anyone now would call "chronic atrophic pyelonephritis." The pathological description of this case is as follows:

> The specimen consisted of a kidney measuring 7 by 4 by 2.5 cm. The microscopic sections showed marked scarring of the cortex within large portions, disappearance of the glomeruli, dilatation or atrophy of the tubules, increased fibrous stroma and thickening of the arterioles with diminution of their lumina. The pelvic mucosa was heavily infiltrated by lymphocytes. The covering epithelium was not well preserved. In some of the thicker parts of the kidney more normal appearing glomeruli and tubules were seen, but even here there were streaks of scarring with varying stages of thickening of Bowman's capsule and fibrosis of glomeruli.

On the other hand, in 1922 Braasch [2] presented a study of 28 cases of unilateral, small kidneys removed surgically. Gross and microscopic examination left little question in his mind that the basic lesion was inflammation, with secondary fibrosis and contracture, although he admitted that in many cases there was minimal evidence of infection at the time of examination. He explained this on the basis of previous, "burned out" infection, rather than on the basis of congenital hypoplasia.

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Read before the Section on Urology at the One-Hundredth Annual Session of the American Medical Association, Atlantic City, June 14, 1951.

From the Section of Urology (Dr. Emmett) and the Division of Surgical Pathology (Dr. McDonald), Mayo Clinic; *Fellow in* Urology, Mayo Foundation and University of Minnesota (Dr. Alvarez-Ierena).

[1] Gutierrez, R.: Surgical Aspects of Renal Agenesis: With Special Reference to Hypoplastic Kidney, Renal Aplasia and Congenital Absence of One Kidney, Arch. Surg. **27**: 686-735 (Oct.) 1933.

[2] Braasch, W. F.: Atrophic Pyelonephritis, J. Urol. **7**: 247-257 (April) 1922.

The experimental work of Goldblatt[3] greatly increased the interest of the profession in unilateral, small, "atrophic" or "contracted" kidneys. It also aroused considerable clinical discussion concerning the possibility of distinguishing congenital hypoplasia from acquired renal "atrophy" or "contraction."

German pathologists, such as Aschoff,[4] Haslinger,[5] Staemmler and Dopheide,[6] Fahr,[7] and Linder,[8] have written much on the subject of the "contracted kidney" found at necropsy. Their pathological observations include the bilateral contracted kidneys of nephrosclerosis and glomerulonephritis, as well as those that have become shrunken or contracted as a result of obstruction, stone, hydronephrosis, and infarcts. Haslinger[5] and Staemmler and Dopheide[6] recognized the pyelonephritic, contracted kidney as a definite clinical entity and did much to draw attention to the subject.

Linder[8] in 1937 made an excellent study of the "contracted kidney." He supported the hypothesis of infection and pyelonephritic contracture as the etiological factor in most "atrophic" or "contracted" kidneys. His hypothesis of pathogenesis mentions early changes of submucosal round cell infiltration in the tips of the papillae and surrounding calyceal fornices, followed by ascending pericanalicular infiltration and edema. Later there is absorption of this infiltration, resulting in peritubular fibrosis and constriction, which causes tubular dilatation (his so-called internal hydronephrosis) and, finally, glomerular hyalinization and atrophy. He further postulated that this fibrotic process could proceed until it produced a severe compressive disturbance of the arterial supply, resulting in ischemia and further renal atrophy.

Lieberthal[9] in 1939 tried to differentiate (by gross and microscopic examination) pyelonephrotic contracture, congenital hypoplasia, contracture secondary to nephrosclerosis, and contracture secondary to chronic glomerulonephritis. Among findings that to him suggested congenital hypoplasia were excessive reduction in size, scarcity or absence of glomeruli, decrease in number of pyramids, fetal lobulation, small blood vessels, and small pelvis and ureter. He pointed out that infection frequently was found associated with congenital hypoplasia. Findings that to him suggested pyelonephritic contracture were a normal number of papillae, many glomeruli, renal pelvis normal in size or larger, and the presence of lymph follicles in the interstitial tissue (evidence of previous intratubular infection—pyelonephritis). He further stated that contraction from nephrosclerosis should be recognized from the changes in the vessels, whereas the typical changes in the glomeruli should identify contracture from chronic glomerulonephritis. He stated:

> The demonstration of adhesions of the glomerular tuft to the peripheral leaf of Bowman's capsule and the presence of half-moon forms on the latter, will usually bear testimony to the previous existence of inflammatory changes in the glomeruli. But, in the advanced stages of contracture, the differentiation may be exceedingly difficult, and only the presence or absence of lymph follicles will tell us which condition we are dealing with.

Lieberthal did not mention the number of kidneys that he studied in order to arrive at his conclusions.

It is interesting to compare the statements of various authors regarding the urographic appearance of the pelvis, calyces, and ureter found in these various types of small kidneys. None of the statements made are in agreement, and the reader is left with the impression that probably there is no pyelographic deformity that is pathognomonic or helpful in the differentiation of the various types of "atrophy" or "contraction."

Since the emergence of the unilateral "atrophic" kidney as a factor of importance in occasional cases of hypertension, the subject has created renewed interest. In the hope that we might be able to contribute something to the clarification of this confused subject, this study was undertaken.

## MATERIAL FOR STUDY

*Selection of Cases.*—It seemed reasonable that a study of a fairly large group of cases of unilateral "atrophic" kidney should supply a practical working answer to the general problem. To find such a substantial group of cases for analysis, we reviewed the histories of all patients in the Mayo Clinic files during the years 1935 to 1948, inclusive, for whom a diagnosis had been made that might indicate the presence of an abnormally small kidney. More than 5,000 histories were reviewed, with such diagnoses as pyelonephritis, chronic pyelonephritis, chronic atrophic pyelonephritis, contracted kidney, hypoplastic kidney, renal aplasia, deformed kidney, and renal atrophy. From this group we found almost 400 cases in which urograms indicated a definite reduction in size of the kidney.

In order to limit the study further, we excluded all cases in which the cause of the "atrophy" was apparent or in which associated pathological conditions existed. We thus eliminated cases of obstructive uropathy with associated pyelectasis, which, as is well known, leads to renal atrophy. Also eliminated from the study were cases with associated renal or ureteral calculi, cyst, and tumor. We also excluded patients with known "medical" diseases, such as glomerulonephritis and nephrosclerosis (usually bilateral, which would remove them automatically from this study).

Our prime motive in this undertaking was to determine whether unilateral hypoplastic or "atrophic" kidneys could be classified and differentiated. We were especially interested to see whether "atrophic pyelonephritis" was distinct from and could be differentiated from "congenital hypoplasia." Although the problem of the incidence

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3. Goldblatt, H.: Studies on Experimental Hypertension: V. The Pathogenesis of Experimental Hypertension Due to Renal Ischemia, Ann. Int. Med. **11**: 69-103 (July) 1937; Experimental Hypertension Induced by Renal Ischemia, Bull. New York Acad. Med. **14**: 523-553 (Sept.) 1938; Studies on Experimental Hypertension: XII. The Experimental Production and Pathogenesis of Hypertension Due to Renal Ischemia, Am. J. Clin. Path. **10**: 40-72 (Jan.) 1940.

4. Aschoff, L.: Pathologische Anatomie: Ein Lehrbuch für Studierende und Ärzte; Spezielle pathologische Anatomie, Jena, G. Fischer, 1909, vol. 2.

5. Haslinger, K.: Die pyelonephritische Schrumpfniere, Ztschr. f. urol. Chir, **24**: 1-83, 1928.

6. Staemmler, M., and Dopheide, W.: Die pyelonephritische Schrumpfniere, Arch. path. Anat. **277**: 713-756 (June) 1930.

7. Fahr, T.: Über pyelonephritische Schrumpfniere und hypogenetische Nephritis, Arch. path. Anat. **301**: 140-185, (Jan.) 1938.

8. Linder, F.: Beitrag zur pathologischen Anatomie der pyelonephritischen Schrumpfniere unter besonderer Berücksichtigung ihrer Arterienveränderungen, Frankfurt, Ztschr. f. Path. **51**: 150-170, 1937.

9. Lieberthal, F.: Pyelonephritic Contracture of the Kidney, Surg., Gynec. & Obst. **69**: 159-171 (Aug.) 1939.

of hypertension and results of nephrectomy in cases of unilateral renal "atrophy" has already been evaluated accurately by others, we decided to include this phase of the subject in this study. Because of this, we eliminated from the study all cases in which bilateral lumbar sympathectomy had been done in addition to nephrectomy for relief of hypertension. We did not eliminate the patients who had undergone unilateral sympathectomy, as it is now well known that this limited procedure is not effective in the treatment of hypertension.

This left for study a total of 183 cases of unilateral renal "atrophy" in which the etiological agent was not readily apparent. The group included a typical variety of cases such as are seen in any urology clinic and which usually are diagnosed as "atrophic pyelonephritis or congenital hypoplasia." In 79 of these 183 cases, nephrectomy had been performed, so that the pathological specimen was available for gross and microscopic study.

A further word of explanation should be said here concerning the selection of cases for this study. Although many of these cases are included in the studies of Braasch and associates [10] and Barker and Walters [11] concerning nephrectomy for hypertension in unilateral renal disease, the two groups of cases cannot be compared. The reason for this is that we eliminated many cases in which the cause of the lesion, such as obstruction and stone, was apparent or associated lesions were present. Such cases are important factors in hypertension, so that, because of their elimination, one would not expect our figures for the incidence of hypertension, results of nephrectomy, and the like, to be similar to theirs.

*Definition of "Atrophy."*—We might logically be asked on what basis we decided that a kidney was sufficiently reduced in size to be called "atrophic." In the nonsurgical cases the decision was made on the basis of urography. If the kidney seemed to be less than two-thirds the size of its mate, we included it in the study. In the surgical cases the selection was made on the basis of weight. Most authoritative tables give the weight of the normal adult kidney as between 140 and 150 gm. We included all kidneys that weighed less than 100 gm. In the tables that deal with this problem (tables 3 and 5) we denoted the degrees of "atrophy" of a kidney as follows: grade 1 "atrophy," weight 76 to 99 gm.; grade 2, 51 to 75 gm.; grade 3, 26 to 50 gm.; and grade 4, 25 gm. or .. As a matter of fact, only three kidneys in the surgi- l group weighed more than 75 gm. All kidneys were weighed without the perirenal fat.

There is an obvious discrepancy in this arbitrary grading if infants and children are considered. Most accepted tables state that the kidney of an infant aged 1 year weighs about 20 gm. The weight of the kidney gradually increases with age, so that at the age of 10 years the average weight is about 96 gm. In our series of surgical cases there were three patients less than 10 years of age, as follows: 1 year, 6 years, and 7 years. The respective weight of the kidney removed from each was as follows: 14 gm., 9 gm., and 7.5 gm.

### ANALYSIS OF MATERIAL

*Data Concerning Entire Group of 183 Cases.*—Age and Sex Incidence: Almost two-thirds of the patients were women. The commonest age period was from 21 to 50 years, although the condition was encountered in all ages.

Evidence of Present or Past Infection: Inasmuch as one of the most controversial points that we are trying to settle is whether differentiation between "congenital hypoplasia" and chronic "atrophic pyelonephritis" is possible, we divided the 183 cases into two groups: A and B. In group A we have put all those cases in which history or findings even remotely suggest any possible renal infection, past or present. As evidence for present infection we made the following stipulations:

| | |
|---|---|
| Male | Voided vesical urine: more than 20 leukocytes per high power field<br>Catheterized urine: 5 or more leukocytes per high power field |
| Female | Voided vesical urine: more than 50 leukocytes per high power field<br>Catheterized urine: 20 or more leukocytes per high power field |
| Male and female | 3 or more leukocytes per high power field in ureteral specimen of urine |

As evidence of past infection we admitted a history of attacks of pyelitis or pyelonephritis, a history of chills, fever, perinephric abscess, renal pain, dysuria (especially in infancy), and a history of "pus in the urine." When in doubt, we placed the patient in group A, so that, so far as possible, the patients in group B should have or have had little chance for previous or present gross infection. The only patients put in group B who had urinary symptoms were those with normal urine in whom a satisfactory explanation of vesical symptoms was found, such as enlarged prostate gland, cystocele, and chronic urethritis in women. For the remainder of the analysis of this group of 183 cases, therefore, they will be divided into groups A and B. In group A will be found 115 cases, while only 68 are put in group B. Of the 115 cases in group A, ureteral specimens of urine from the "atrophic" kidney were available in only 74. Of these 74 there was evidence of infection (more than 3 leukocytes per high power field) in only 25 (approximately a third).

Incidence of Hypertension: The commonest signs and symptoms associated with the unilateral "atrophic" kidney are hypertension and renal pain. The incidence of hypertension is considered in table 1. In this study we have defined hypertension as a blood pressure of 150 mm. of mercury systolic and 100 diastolic or more. If either reading was lower than these figures, the condition was not regarded as hypertension. If two or more readings were available, the lowest was used. The incidence of hypertension for the entire group was 37%. This is somewhat lower than the figure of approximately 45% suggested by Braasch. This difference, however, is no doubt due to the fact that we have eliminated so many cases complicated by such conditions as obstruction and stone, as explained previously. The incidence of hypertension in group B is higher than in group A. This may or may not be of significance.

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10. (*a*) Braasch, W. F.: Genitourinary Surgery: Renal Disease as a Factor in Hypertension, Am. J. Surg. **56**: 209-215 (April) 1942; The Surgical Kidney as an Etiological Factor in Hypertension, Canad. M. A. J. **46**: 9-15 (Jan.) 1942. (*b*) Braasch, W. F.; Walters, W., and Hammer, H. J.: Hypertension and the Surgical Kidney, J. A. M. A. **115**: 1837-1841 (Nov. 30) 1940. (*c*) Barker, N. W., and Braasch, W. F.: Collective Review: The Course of Hypertension After Nephrectomy for Advanced Unilateral Renal Disease, Internat. Abstr. Surg. **84**: 299-304 (April) 1947. (*d*) Braasch.[2]

11. Barker, N. W., and Walters, W.: Hypertension and Chronic Atrophic Pyelonephritis: Results of Nephrectomy J. A. M. A. **115**: 912-916 (Sept. 14) 1940.

We found that about half the patients complained of pain that could possibly be interpreted as being of renal origin. In many cases, however, the pain was mild and difficult to distinguish from an ordinary backache.

Role of Renal Function: The functional ability of the "atrophic" kidney is an important subject. It has become a frequent topic for discussion, many articles on the subject being written primarily to warn surgeons against removing a kidney for any reason without first adequately demonstrating that the remaining kidney is not "atrophic" and incapable of supporting life. An analysis of renal function is made in table 2. Any estimate of renal function is admittedly inaccurate but nevertheless very important. In most cases we have made our estimate on the basis of the excretory urograms; however, in a few cases additional data from phenolsulfonphthalein or indigo carmine excretion were available. It will be noted that only 55 (about 30%) of the "atrophic" kidneys showed evidence of "normal" function, while 76 (about 42%) showed poor or no function to be present. This is in contrast with the opposite kidney, in which normal function was estimated in more than 90% of cases. The minor differences between the two groups (A and B) do not appear to be significant.

*Data Concerning the 79 Surgical Cases in Which Nephrectomy Was Performed.*—As previously stated, in 79 of the 183 cases nephrectomy was done, so that the "atrophic" kidney was available to us for study. These 79 cases will now be considered as a separate group for analysis. The sex incidence was essentially the same as for the larger group. These cases were divided into A and B groups (see footnotes to table 1), and analyzed with respect to the incidence of hypertension, presence or absence of infection in the ureteral specimen of urine, and the grade of "atrophy" of the kidney. Forty-eight cases were in the A group, while 31 were in the B group. Of the 40 ureteral specimens of urine available for study in the A group, only 16 (40%) showed pyuria (more than 3 leukocytes per high power field). These findings further emphasize the difficulty of deciding clinically the importance of infection as a factor in renal "atrophy."

Incidence of Hypertension: Of the 79 cases, 43 (54%) had associated hypertension. This is a higher incidence than for the entire group (37% of 183 cases). Here again the explanation of this apparent discrepancy probably lies in the fact that the commonest indication for nephrectomy in renal "atrophy" is hypertension. Therefore, one would expect a higher incidence in a group of cases in which operation had been performed than in cases in which operation had not been performed. Further breaking down of the figures showed that the incidence of hypertension in the group B cases (without infection) was considerably greater than in the group A cases.

Incidence of Hypertension Correlated with Degree of Renal "Atrophy": The degree of renal atrophy apparently has little or nothing to do with the incidence of hypertension, since, oddly enough, there was a greater incidence (approximately 90%) of grade 3 and grade 4 "atrophy" in group A than in group B (approximately 71%), which had the higher incidence of hypertension. The fact that the majority of kidneys removed were of grade 3 or 4 "atrophy" probably has no great clinical significance, because most clinicians tend to urge nephrectomy for hypertension only in patients who have very definite and advanced renal "atrophy."

Indications for Nephrectomy: An analysis of the 79 cases showed that nephrectomy was advised for two principal reasons: renal pain and hypertension.

Results of Nephrectomy: Relief of pain. Because of inadequate follow-up notes on the histories, it was not always possible to estimate with accuracy the degree of relief secured from renal pain (which often was very mild). It was our impression, however, that good results were achieved in the majority of cases.

TABLE 1.—*Incidence of Hypertension in 183 Cases of "Atrophic" Kidney*

| Group | Age, Yr. | Total Cases | Cases with Hypertension, No. |
|---|---|---|---|
| A * | 0-10 | 3 | 1 |
| | 11-20 | 10 | 3 |
| | 21-30 | 26 | 2 |
| | 31-40 | 29 | 13 |
| | 41-50 | 20 | 4 |
| | 51-60 | 18 | 10 |
| | 61 or more | 9 | 4 |
| Subtotal | | 115 | 37 (32%) |
| B † | 0-10 | 3 | 1 |
| | 11-20 | 4 | 3 |
| | 21-30 | 15 | 7 |
| | 31-40 | 16 | 9 |
| | 41-50 | 20 | 7 |
| | 51-60 | 5 | 2 |
| | 61 or more | 5 | 2 |
| Subtotal | | 68 | 31 (46%) |
| Grand total | | 183 | 68 (37%) |

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* Group A: Cases with evidence of past or present infection. See text for explanation.

† Group B: Cases with no evidence of past or present infection. See text for explanation.

TABLE 2.—*Analysis of the Status of Renal Function in 183 Cases of "Atrophic" Kidney*

| | | Degree of Function, No. of Cases | | | | |
|---|---|---|---|---|---|---|
| Group | Total | Normal | Fair | Poor | Absent | Not Determined |
| A | 115 | 29 | 31 | 29 | 20 | 6 |
| B | 68 | 26 | 13 | 12 | 15 | 2 |
| Total | 183 | 55 | 44 | 41 | 35 | 8 |

Relief of hypertension. In evaluating the results of nephrectomy for hypertension, we have established the same arbitrary definitions as those used by Barker and Braasch [10c]: (1) good, denoting that the systolic pressure decreased to less than 150 mm. of mercury and the diastolic pressure to less than 100, (2) fair, if the blood pressure was significantly reduced, but still was 150 mm. of mercury systolic and 100 diastolic, or more, and (3) poor, denoting no significant reduction in blood pressure. Immediate good results (table 3) were obtained in 22 of the 43 cases (approximately 50%). This is almost an identical figure with that of Barker and Braasch for the results in unilateral renal disease in general but slightly higher than for their smaller group of selected cases of "atrophic pyelonephritis," in which there were approximately 41% good results. The results seem to be slightly better in group B than in group A, but the number of cases in each group is too small to be of statistical significance.

A word should be said about the permanence of results. Five of the 43 patients were not traced in the two-year or more period. Of the 22 patients with immediate good results, 19 maintained these good results, but the other 3 dropped to "fair" in the two-year follow-up. All the patients who secured fair immediate results maintained them in the two-year follow-up except for one patient who was not traced. Because of the fact that only such a small percentage of patients do not maintain their immediate results, in the subsequent analysis we shall employ only the immediate postoperative results in our comparison and correlations.

Results of Nephrectomy Correlated with Duration of Hypertension and Results of Funduscopic Examination: It is impossible to secure accurate information concerning the duration of hypertension. Many patients are not aware of its presence until they are examined for advanced late symptoms of this disease. Even though such information is inaccurate, we have included it in table 4, where we have recorded the "known" duration of hypertension and compared it with the results of nephrectomy.

TABLE 3.—*Results of Nephrectomy for Hypertension (Forty-Three Cases) of "Atrophic" Kidney*

| Result | Time After Operation: Immediate (2 to 4 Weeks): Total | Group A | Group B | 2 Yr. or More: Total * | Group A | Group B | 5 Yr. or More: Total † | Group A | Group B |
|---|---|---|---|---|---|---|---|---|---|
| Good | 22 | 8 | 14 | 19 | 6 | 13 | 8 | 2 | 6 |
| Fair | 7 | 4 | 3 | 9 | 5 | 4 | 5 | 2 | 3 |
| Poor | 13 | 7 | 6 | 7 | 4 | 3 | 2 | 1 | 1 |
| Unknown | 1 | 1 | .. | .. | .. | .. | .. | .. | .. |
| Dead | .. | .. | .. | 3 | 1 | 2 | 3 | 1 | 2 |
| Not traced | .. | .. | .. | 5 | 3 | 2 | 25 | .. | .. |
| Total | 43 | | | 43 | | | 43 | | |

* Traced patients. † Some patients were not traced; others have been traced for less than a five-year period.

TABLE 4.—*Analysis of Forty-Three Cases, Groups A and B, with Hypertension*; Immediate Results as Correlated with Duration of Hypertension, Status of Fundus, and Grade of Contraction of Kidney*

| Results | Total Cases | Known Duration of Hypertension: 0-5 Yr. | 5-10 Yr. | 10 Yr. or More | Not Known | Status of Fundus, Grading of Changes (Keith-Wagener): 0 | 1 | 2 | 3 | 4 | Grade of Contraction of Kidney: 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Good | 22 | 19 | 2 | 1 | .. | .. | 11 | 5 | 2 | 4 | 2 | 6 | 4 | 10 |
| Fair | 7 | 3 | 2 | 2 | .. | .. | 1 | 3 | 3 | .. | .. | 1 | 5 | 1 |
| Poor | 13 | 5 | 4 | 3 | 1 | .. | 8 | 3 | 2 | .. | 1 | 3 | 4 | 5 |
| Unknown | 1 | 1 | .. | .. | .. | .. | .. | 1 | .. | .. | .. | .. | .. | 1 |

* With or without infection or history of infection.

lthough the table suggests that the best results are achieved in patients in whom the duration of hypertension is less than five years, it must be remembered that many such patients may have had the disease many more years than had been realized. The same generalizations can be made in regard to pathological changes found in the eye grounds (table 4). Although it appears that the majority of good results occurs in those cases with minimal (group 1 or 2) changes (Keith-Wagener classification [12]), good results are achieved in patients with advanced retinopathy (groups 3 and 4).

Results of Nephrectomy Correlated with Degree of Renal "Atrophy": This information is also given in table 4. There is no correlation between the weight of the kidney and the result of nephrectomy.

Results of Nephrectomy Correlated with Age of Patient: We compared the results of nephrectomy with the patients' ages by decades. There seems to be no correlation.

*Pathological Study of the 79 Surgical Cases.*—Up to this point it seems apparent that none of the clinical data accumulated so far in this study are of much value in the solution of our problem: Are there two definite entities (chronic "atrophic" pyelonephritis and congenital hypoplasia) and, if so, may they be differentiated with accuracy? We now turn to the gross and microscopic examination of the kidneys in search of an answer.

Pathological Classification: The pathological examination was undertaken in an entirely objective manner, each kidney being examined without any knowledge of the clinical or urographic data associated with it. Specimens were examined both grossly and microscopically. In the gross specimen we looked especially for depressions and irregularity of the surface (caused by scars) and difficulty in stripping of the capsule from the kidney. Lack of uniformity of thickness of the cortex, we felt, was also suggestive. For the microscopic study, slides were made from radial sections cut from both the most and the least affected areas of our specimens, in an attempt to include all histological elements from the renal cortex to the papillae. Slides were stained with hematoxylin-eosin and van Gieson stains.

The chief object of the pathological examination was to see whether there were features (either gross or microscopic) that would permit segregation of specimens into separate groups or classifications. This study proved most disheartening. The further the examination proceeded, the more it became apparent that grouping or classification was impractical if not wholly impossible. Nevertheless, in an effort to explore all possibilities exhaustively, the kidneys were placed in four groups on the basis of rather meager and unconvincing pathological data, so that they could be compared with clinical and urographic data. The four groups were as follows: (1) aplasia, (2) congenital hypoplasia, (3) chronic "atrophic" pyelonephritis, and (4) chronic "atrophic" pyelonephritis superimposed on congenital hypoplasia.

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[12] Wagener, H. P., and Keith, N. M.: Diffuse Arteriolar Disease with Hypertension and the Associated Retinal Lesions, Medicine 18: 317-430 (Sept.) 1939.

Aplasia: For this group we stipulated as an arbitrary definition of renal aplasia that no functioning renal tissue exists. Grossly the tissue does not appear as a kidney. Usually one finds a mass of fibrous tissue, within which are embedded a few cystic tubules. (If any glomeruli were seen, the case was put in the group of hypoplasias rather than aplasia.) Of the six cases in this group the ureter could not be catheterized in five, a fact that would indicate the accuracy of Gutierrez' statement that the ureter usually is incompletely developed and not patent.

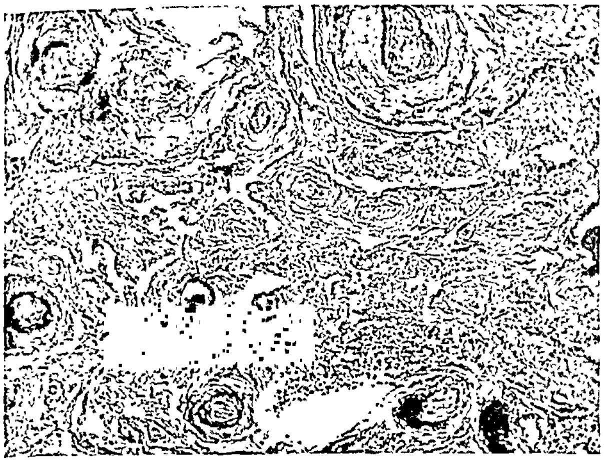

Fig. 1.—Aplasia of the kidney. The kidney is represented by a few tubules, without glomeruli. Note the marked endarteritis (van Gieson).

In our cases usually there was a definite renal pedicle present, which contained the usual structures. We were impressed with the findings of intimal thickening in the large vessels in the pedicle (fig. 1), which we feel is probably in the nature of physiological endarteritis. (This process is also seen in the iliac artery to a limb that has been amputated years before, or in a branch of the pulmonary artery when the lobe of the lung supplied by it has been functionless over a long period.) It has been a common concept that intimal thickening does not occur in hypoplasia or aplasia of the kidney, but this has been contrary to our findings. It would appear, therefore, that endarteritis is of little value in defining the various types of lesions that produce a small "atrophic" kidney. Six of our 79 surgical cases were included in the aplastic group.

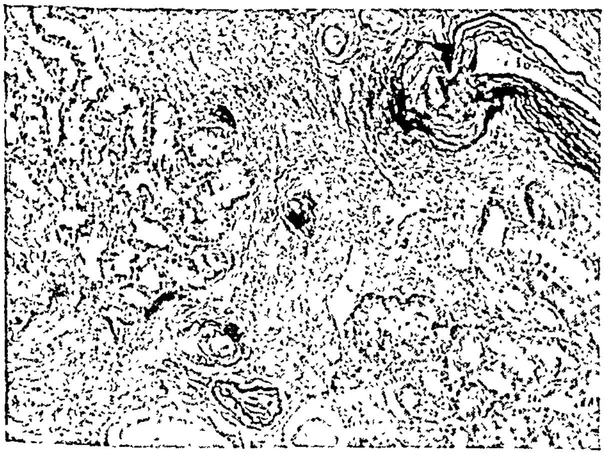

Fig. 2.—The scarring in the kidney probably represents the second stage of pyelonephritis. There is marked endarteritis (van Gieson).

Congenital Hypoplasia: This posed a more difficult problem than aplasia for pathological evaluation. Again, by our own arbitrary definition a kidney put in this group is small, but it is a functioning kidney containing normally functioning glomeruli and tubules. The normal contour of the kidney was usually preserved, although fetal lobulations were frequently present. Vascular changes were not prominent. Inasmuch as most of these kidneys had been catheterized shortly before nephrectomy was done, there were multiple foci of inflammatory cells, and in many cases small abscesses were present. (This finding has been noted in our pathology laboratory for years, in kidneys removed at operation that had been catheterized cystoscopically shortly before operation.) This finding increases the difficulty of distinguishing between congenital hypoplasia and chronic "atrophic" pyelonephritis. We were not able to substantiate the statement that frequently appears in the literature to the effect that there are fewer pyramids in this type of kidney than in the normal kidney. All of our material was fixed, and the accurate identification of pyramids did not seem feasible. Nine of our 79 surgical cases were included in the hypoplastic group.

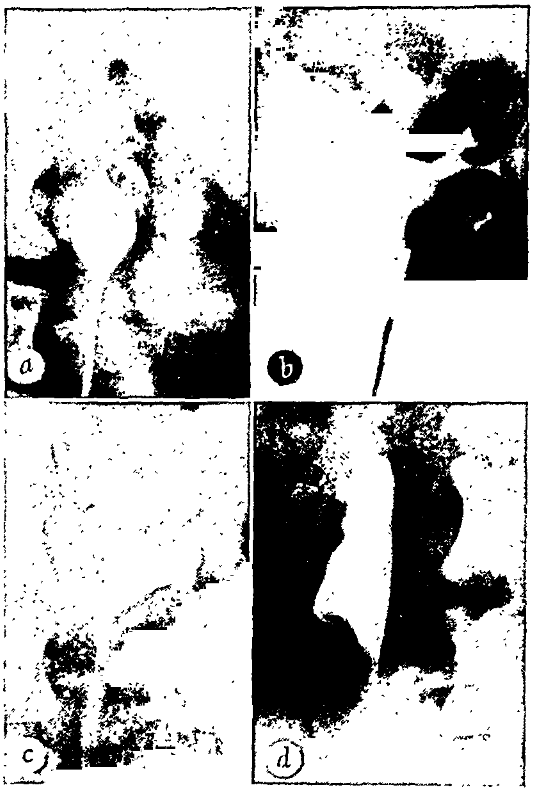

Fig. 3.—Varieties of pyelograms encountered in "atrophic" kidneys. The "pathological classification" (see text) of the illustrations is as follows: *a*, renal aplasia; *b*, *c*, and *d*, congenital hypoplasia.

Chronic "Atrophic" Pyelonephritis: It is well known that obstruction with infection and subsequent hydronephrotic atrophy is a common cause of renal atrophy. We have tried to exclude all such cases that in any way demonstrated obstruction or hydronephrosis. In the cases put in this group we observed primarily scars (gross or microscopic), which were presumably the result of infection. There was often hyalinization of the glomeruli in the scarred areas, together with cystic dilatation of the tubules. In some cases there were collections of lymphocytes and other inflammatory cells, but in others none were apparent (indicating, we thought, a "burned-out" infection). Vascular changes in the scarred areas consisted of intimal thickening of the medium-sized vessels with resultant narrowing of the lumen (fig. 2). This finding is not helpful in differential diagnosis, because the vessels of the same size are affected in the arteriosclerotic kidney (other terms: nephrosclerosis, benign nephrosclerosis). Malignant nephrosclerosis and chronic glomerulonephritis are more easily excluded, because in these cases the small vessels and arterioles are involved diffusely and the lesion usually is bilateral. Fifty-one of the 79 surgical cases were included in this group of cases of chronic "atrophic" pyelonephritis.

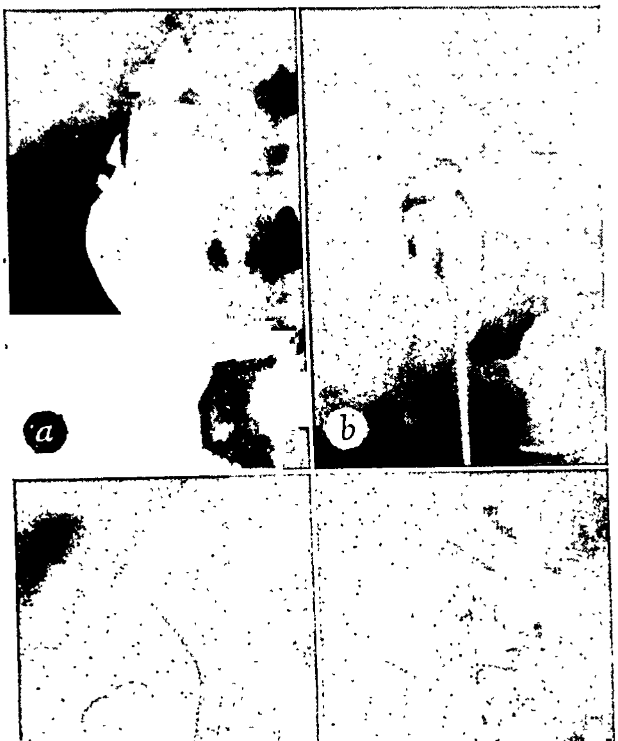

Fig. 4.—Varieties of pyelograms encountered in "atrophic" kidneys. The "pathological classification" (see text) of the illustrations is as follows: *a*, congenital hypoplasia; *b*, *c*, and *d*, congenital hypoplasia with superimposed chronic pyelonephritis.

Chronic "Atrophic" Pyelonephritis Superimposed on Congenital Hypoplasia: In this category were placed cases in which a portion of the kidney did not show scars, a fact which suggested that the kidney had always been a small one. In this type of case part of the kidney showed scarring with narrowing of the cortex. Histological study of the unscarred portion of the kidney revealed no increased fibrous tissue, inflammatory cells, or vascular changes, while the scarred portion revealed those three features. It is interesting to speculate as to how many "atrophic" scarred kidneys are the result of infection engrafted on a comparatively small kidney. Thirteen of the 79 surgical cases were included in this group.

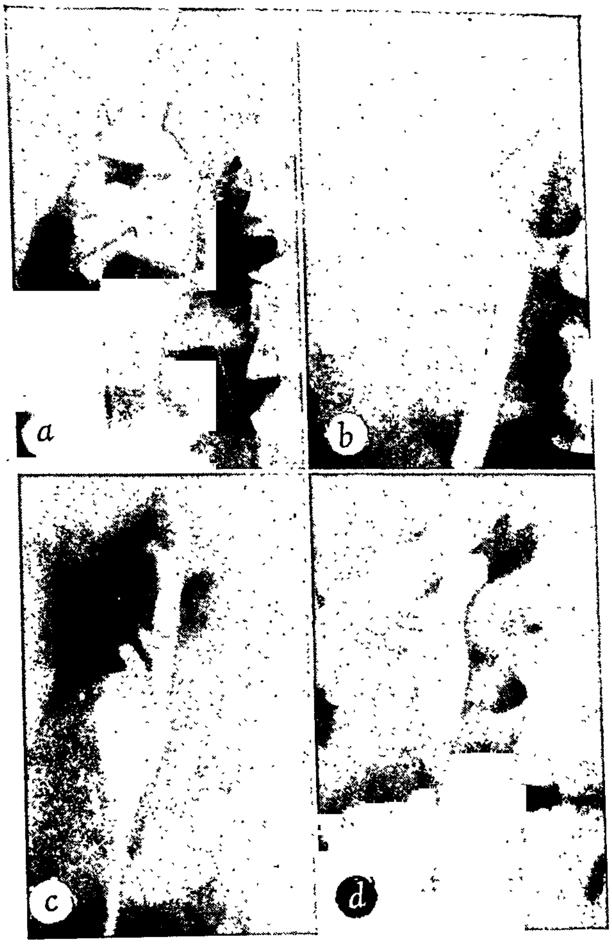

Fig. 5.—Varieties of pyelograms encountered in "atrophic" kidneys. The "pathological classification" (see text) in *a*, *b*, *c*, and *d* is chronic atrophic pyelonephritis.

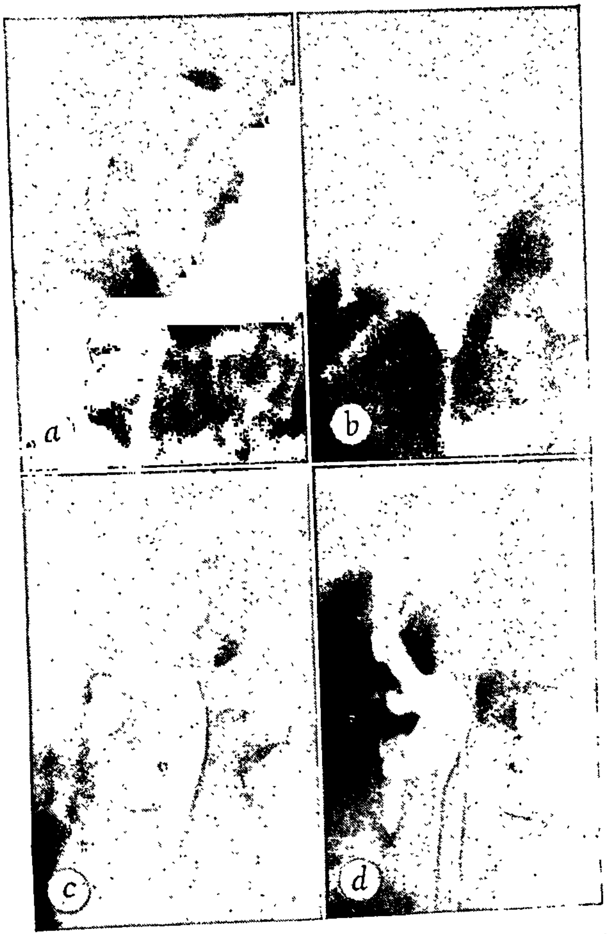

Fig. 6.—Varieties of pyelograms encountered in "atrophic" kidneys. The "pathological classification" (see text) in *a*, *b*, *c*, and *d* is chronic atrophic pyelonephritis.

Pathological Classification Correlated with Age, Incidence of Hypertension, and Evidence of Infection: As can be surmised from our description of the pathological study, we were not impressed with our ability to classify and distinguish varieties of renal "atrophy" or hypoplasia. Having made an attempt at classification, however, it seemed worth while to further attempt to assess its value. In table 5 our four pathological classifications have been compared with age, incidence of hypertension, and evidence of infection. It can be seen that there is no correlation with the age of the patient. There seems to be no significant correlation between the incidence of hypertension and the various pathological groups, and, to further discourage attempts at classification, of the four ureteral specimens available in the hypoplastic group, three showed gross infection. To confuse the issue further, only 12 of the 29 available ureteral specimens of urine in the chronic "atrophic" pyelonephritis group contained pus cells.

Pathological Classification Correlated with Results of Nephrectomy for Hypertension: In table 6 it can be seen that apparently there is no correlation between the pathological diagnosis and the results that can be noted from nephrectomy in the patients with hypertension.

Table 5.—*Correlation of Pathological Classification in Seventy-Nine Surgical Cases of Renal "Atrophy" with Age, Incidence of Hypertension, and Evidence of Possible Previous or Present Infection*

| Pathological Classification | Total Cases | Age, Yr. 0-20 | 21-40 | 41+ | With Hypertension No. of Cases | % | Possible Evidence of Past or Present Infection No. of Cases | % | Ureteral Specimens Available, No. of Cases | Pus Present, More than 3 Leukocytes per High Power Field, No. of Cases |
|---|---|---|---|---|---|---|---|---|---|---|
| Aplasia | 6 | .. | 3 | 3 | 1 | 17 | 2 | 33 | 2 | 0 |
| Hypoplasia | 9 | 1 | 4 | 4 | 4 | 44 | 6 | 67 | 4 | 3 |
| Hypoplasia and chronic "atrophic" pyelonephritis | 13 | 3 | 7 | 3 | 7 | 54 | 6 | 46 | 5 | 1 |
| Chronic "atrophic" pyelonephritis | 51 | 10 | 24 | 17 | 31 | 61 | 34 | 67 | 29 | 12 |

*Role of Pyelography in the "Atrophic" Kidney.*—Inasmuch as definite statements have appeared in the literature concerning the many varieties of pyelographic deformity seen in the various types of hypoplasia and "atrophy," we decided to try to evaluate this phase of the problem. We critically reviewed the urograms in all 79 surgical cases and listed all findings that could be considered to fit definite descriptive terms. Among the commoner findings could be listed (1) the vertical pelvis, (2) pelvis lying close to spinal column, (3) inflammatory changes in the calyces, (4) "bizarre" type of calyces, and (5) evidence of minimal degrees of pyelectasis and caliectasis. Among the less frequent descriptions were listed such things as (1) pelvis and calyces larger than one would expect for the size of the renal cortex, (2) size of pelvis and calyces corresponding to size of renal cortex, (3) no major calyces, and minor calyces appearing to arise directly from the pelvis, and (4) absence of calyces.

Table 6.—*Correlation of Pathological Diagnosis in Forty-Three Patients with Hypertension and Results (Immediate) of Nephrectomy*

| Pathological Classification | Total Cases | Results Good | Fair | Poor | Not Known |
|---|---|---|---|---|---|
| Aplasia | 1 | .. | .. | 1 | .. |
| Hypoplasia | 4 | 2 | .. | 2 | .. |
| Hypoplasia and chronic "atrophic" pyelonephritis | 7 | 4 | 3 | .. | .. |
| Chronic "atrophic" pyelonephritis | 31 | 16 | 4 | 10 | 1 |

All these findings were charted against such factors as the pathological classification (e. g., aplasia or hypoplasia and chronic "atrophic" pyelonephritis) and clinical grouping (groups A and B), and absolutely no correlation could be found. In our opinion any type of pyelogram found in this study can occur in any of the arbitrary classifications or groups that we have been able to create. To illustrate this point, we have reproduced here 16 typical pyelograms and have indicated the pathological groups in which they occurred (fig. 3, 4, 5, and 6).

## SUMMARY AND CONCLUSIONS

There is no doubt in our minds that the unilateral "hypoplastic" or "atrophic" kidney represents several different and distinct pathological entities. We are sure that in some cases the lesion is congenital, while in others it is the result of acquired or a combination of congenital and acquired conditions. One of the commonest acquired conditions is infection ("chronic atrophic pyelonephritis"). We feel that in some cases of apparent chronic "atrophic" pyelonephritis the kidney may have been congenitally small to start with, but we know of no way to decide this problem accurately.

Among other acquired conditions that predispose to "atrophy" may be mentioned obstruction (with or without infection), complete or partial vascular occlusion, infarcts, and stone (with or without infection). Primary vascular disease, such as benign and malignant nephrosclerosis and glomerulonephritis, may be the underlying cause in some cases, but this usually is a bilateral lesion. Our study indicates that it is impractical and almost impossible to attempt to distinguish these conditions—clinically, pathologically, or urographically—with any degree of accuracy.

Although the unilateral hypoplastic or "atrophic" kidney is of importance as a cause of hypertension, as near as we can ascertain, the incidence of hypertension and the results of nephrectomy are approximately the same in every artificial group that we have been able to create (clinically, pyelographically, or pathologically). For this reason it would seem that it might be more sensible to forego any attempts at classification according to origin and clinical findings and instead to employ some common "blanket" term, such as "atrophic kidney" or "renal atrophy," to describe the unilateral small kidney, the cause of which is not apparent.

# ANTIBIOTICS AND LOW CERVICAL CESARIAN SECTION IN DYSTOCIA OR INTRAPARTUM SEPSIS

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*and*
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The low cervical cesarian section may be safely employed in the presence of sepsis. This statement is supported by 140 consecutive transperitoneal cesarian sections without a fatality in patients who were either potentially or actually infected. This has been accomplished by the addition of modern chemotherapy.

## TRANSPERITONEAL CESARIAN SECTION VERSUS EXTRAPERITONEAL CESARIAN SECTION

Prior to the advent of modern antibacterial therapy a succession of cesarian section techniques was developed. Each supplanted the previous ones, and all made claims of superiority in minimizing postoperative sepsis. The cesarian hysterectomy, for purposes of preventing or controlling postoperative sepsis, has lost most of its adherents. A substantial number of physicians still prefer the extraperitoneal cesarian techniques when infection threatens or is actually present. Almost simultaneous with the current revival of the extraperitoneal operations came the availability of effective chemotherapy. Sulfonamides and penicillin and other more recent antibiotics were found to be highly efficient, when used conjointly, in combating such forms of infection as postoperative peritonitis and puerperal sepsis. The advocates of extraperitoneal cesarian section thereupon included this form of protection against sepsis but, nevertheless, maintain it is particularly the surgical procedure that enables the septic patient to recover.[1] We saw no difference in the results of our extraperitoneal cesarian sections, regardless of whether the peritoneum was accidentally opened. In fact, one patient on whom an elective extraperitoneal cesarian section was performed had severe postoperative sepsis and ileus, even though the peritoneal cavity was not disturbed. Mengert[2] has cited a maternal death following an extraperitoneal cesarian section in which autopsy revealed peritonitis but no peritoneal injury. It is therefore doubtful that this technique could be the intrinsic source of the better postoperative results.

Recently Settle and Wilson,[3] Portes and Mayer,[4] Perez,[5] Douglas and Landesman,[6] McDonald,[7] Bazan and his associates,[8] and Dantuono[9] advocated the low cervical cesarian section when the patient's resistance is bolstered by the protective administration of antibacterial agents. In the cases they reported the patients had prolonged labors and ruptured membranes for many hours. Heretofore the danger of severe postoperative sepsis and maternal death virtually contraindicated transperitoneal cesarian sections in such patients. The acid test for the efficacy of chemotherapy is its application in conjunction with the low cervical cesarian in patients having intrapartum sepsis. Recently we reported a study[10] of 100 low cervical cesarian sections performed on such patients. Previously they would probably have been subjected to a cesarian hysterectomy or an extraperitoneal cesarian section, or, possibly, a mutilating operation would have been performed on a dead fetus. Forty-seven patients with intrapartum sepsis were included in this report, and five of these had been in labor for a long period before admission to our service. The results were no maternal deaths, a surprisingly mild recovery in most instances, and no postoperative peritonitis; this could leave no other conclusion but that this new trend in the management of septic or potentially infected patients during labor has a valid basis for its continuation.

## PROLONGED LABOR AS RELATED TO CESARIAN SECTION

The incidence of prolonged labor (24 hours or longer) at the Cook County Hospital is 1 to 2%. When it was demonstrated that use of penicillin combined with sulfonamides (and occasionally streptomycin) assured the recovery of patients unable to be delivered otherwise, the incidence of transperitoneal cesarian sections reached 15% in cases of prolonged labor. In the past three years the incidence of low cervical cesarian sections among patients potentially or actually infected amounted to approximately 0.3% of all patients delivered in the Cook County Hospital Obstetrical Services.

Obstetric judgment in its finest form is needed when dystocia is present. To begin with, it is not easy to foretell dystocia when obvious fetopelvic disproportions and malpresentations have been screened out. Furthermore, constriction ring dystocia is more prevalent in these cases. A borderline disproportion in itself is difficult to diagnose, but, when masked by the presence of dysfunctional uter-

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From the Obstetrical Departments of the Cook County, Mt. Sinai, and Edgewater hospitals and the Departments of *Obstetrics and Gynecology* of the University of Illinois, the Chicago Medical School, and Northwestern University.

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ine action, it becomes a challenge to the obstetrician. Roentgenographic pelvimetry is of questionable value. McKelvey,[11] a proponent of this type of mensuration, has pointed out that the information thus obtained cannot decisively separate patients who will need a cesarian section from those certain to deliver vaginally. There is a doubtful range in all planes of the pelvis that prevents such precision. With the application of antibacterial agents, a full test of labor can now be given without nullifying the safety of a transperitoneal cesarian section when it later becomes necessary. The following two cases exemplify this.

Case 1.—M. W., a white primigravida, 17, had an artificial rupture of the membranes after 30 hours of labor. The cervix was completely dilated in 34 hours. Three attempts at forceps delivery were unsuccessful. It was then noted that the head fitted the bony pelvis very tightly. Roentgenographic pelvimetry revealed the transverse of the midplane to be 9.1 cm. The patient was delivered by a low cervical section after 42 hours of labor. She had fever for two days, with a peak of 102 F on the day of delivery. The patient left the hospital on the 16th day with her baby, who weighed 7 lb. 5½ oz. (3,340 gm.) at birth. She was in good condition.

Case 2.—M. S., a white primigravida, 29, was told by an orthopedic surgeon that her pelvis was not normal. A roentgenogram of her pelvis during gestation was reported as showing "spondylolisthesis of the first degree." The attending obstetrician could not corroborate this digitally, and it was decided, therefore, to give the patient a test of labor. The membranes ruptured two hours before the onset of labor. The cervix was completely dilated in 19½ hours. After two hours of good contractions with no progress, a vaginal examination revealed that the head was tightly pressed against the bony portion of the midpelvis, with the dependent portion of the presenting fetal head at 2+ to 3+ station. The patient was thereupon scheduled for an abdominal delivery, but the operation had to be delayed until the completion of a surgical emergency that was scheduled earlier. Thus a low cervical cesarian section was performed with the patient under spinal anesthesia after 25 hours of labor. The patient received penicillin and streptomycin preoperatively and postoperatively. There was no postoperative morbidity, and on the ninth day the patient was discharged with a normal baby, who weighed 7 lb. 15 oz. (3,630 gm.) at birth.

Women infected and neglected still come to our obstetric service for delivery, despite medical education in maternal welfare and community teaching.[12] Patients who have prolonged labor and whose labor continues for long periods after rupture of the membranes become potentially or actually infected.[13] Regardless of the ultimate manner of delivery, the obstetrician must be mindful of keeping the patient in the best possible condition. For this purpose periods of rest by sedation and fluid balance maintenance are very helpful. Dehydration and acidosis in the course of prolonged labors are factors in causing temperature elevation. Blood transfusions are particularly valuable for increasing the patient's chances for recovery. The anesthesia must also be carefully selected in the best interests of both the parturient and the fetus. In addition to such supervision, the patient receives chemotherapy prophylactically as soon as dystocia labor is regarded as even a remote possibility.

The decision to perform an abdominal delivery should be made when it is obvious that labor is not progressing. This can be due to borderline pelvic disproportion or to the association of other factors, such as malpresentation or the development of a constriction ring. Dysfunctional uterine action frequently accompanies the foregoing complications, but it also can be the only obvious reason for the prolonged labor. In the latter instance, rupture of the intact membranes is indicated. If this does not improve the contractile action of the uterus satisfactorily, oxytocin injection (pitocin®) may be given hypodermically in small doses repeated every 20 minutes, or intravenously in a highly diluted mixture.[14] Failure of oxytocics to bring about an effective uterine action occasionally occurs; if this happens, a cesarian section should be done if conditions for Duhrssen's incisions of the cervix and forceps delivery are not favorable. Too long a delay in the performance of a cesarian section when parturients failed to be benefited by intravenous administration of oxytocin injection was a contributory factor in the neonatal deaths of two infants.

Carefully taken cultures reveal that the bacteria causing puerperal or postoperative sepsis seldom belong to a single species of micro-organism. Frequently, pathogenic bacteria are found as mixed groups, possibly consisting of gram-negative bacilli of the intestinal group or gram-positive cocci and bacilli. To counteract these bacteria more than one antibacterial agent should be employed. Penicillin, the safest and most dependable antibiotic, is weak in counteracting the effects of the gram-negative intestinal group bacilli; therefore, it should be supplemented by sulfadiazine or streptomycin to increase the chances of recovery. The use of two or more antibacterial drugs gives the patient the protection of their overlapping bacterial spectra, and these drugs act synergistically on the bacteria.[15] However, there is evidence that certain antibiotics may even show antagonism. Chloramphenicol, for example, may interfere with the action of penicillin.[16] Antibiotics must therefore be selected carefully.

Single long acting large doses of penicillin may be sufficient in the absence of intrapartum fever; however, with sepsis already present, antibacterial drugs should be used in large doses, frequently repeated throughout the 24 hours of each day. In all cases the administration of antibacterial medications should continue postoperatively until the mother is afebrile for three full days. If a cesarian section is deemed necessary for a patient who has not received the above recommended treatment the preoperative management should be revised. Chemotherapy should be instituted at once. A patient so neglected needs time to bolster her resistance. The only exception to this would be signs of a threatened rupture of the uterus. Fluids should be administered intravenously while the patient is being rested by sedation. During this period the patient should receive large doses of antibacterial agents in combinations that will fortify her against the bacteria that usually cause puerperal infection. By treating the patient in this manner while the operation is temporarily deferred, a smoother postoperative convalescence and less febrile morbidity are achieved. Transfusions of whole blood are invariably given to infected patients prior to abdominal delivery.

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[11] McKelvey, J. L.: Cesarean Section, J. Iowa M. Soc. 32:281 (July) 1942.

[12] Neglected cases were considered to be those of prolonged labors managed by private physicians or midwives in the home, usually for more than 24 hours, with no record of rectal or vaginal examination except the word of the patient, and cases in which attempts at delivery had failed.

[13] Potential infection was considered to be present when labor had lasted more than 24 hours and/or membranes had been ruptured more than 12 hours, and actual infection was considered to be present when, in addition to a defined, potential infection, there were clinical manifestations of sepsis, such as intrapartum fever, chill, and purulent and foul amniotic fluid.

[14] When oxytocin injection is given hypodermically, one should start with a dose of 0.5 minims (0.03 cc.), increasing the dose by 0.5 minims every 20 minutes, until a maximum dose of 2.0 minims (0.12 cc.) is reached, or until the uterine contractions resemble those that are normal in the first stage of active labor. When given intravenously, 10 minims of oxytocin injection should be diluted in 1 liter of 5% dextrose solution and administered at a rate of 1 drop every 2 seconds, or 50 to 60 cc. per minute. During the administration of oxytocin injection (hypodermically or intravenously), the patient must be constantly observed in order to check frequently the fetal heart rate and the character and frequency of uterine contraction.

[15] Lyons, C.: Antibacterial Therapy in Gynecologic Surgery and Pelvic Infections, in Meigs, J. V., and Sturgis, S. H., editors: Progress in Gynecology, New York, Grune & Stratton, Inc., 1950, vol. 2, chap. 10, pp. 724-738.

[16] Jawetz, E.; Gunnison, J. B.; Speck, R. S., and Coleman, V. R.: Studies on Antibiotic Synergism and Antagonism: The Interference of Chloramphenicol with the Action of Penicillin, A. M. A. Arch. Int. Med. 87:349 (March) 1951.

## ANALYSIS OF FORTY TRANSPERITONEAL CESARIAN SECTIONS

In the interval since our last report[10] a period of 16 months has elapsed, and we have added a second series of 40 cases. Twenty-four of the patients originated from our services at the Cook County Hospital and 16 from private hospital practice and consultations. Thirty-four (35%) had labors characterized by dysfunctional uterine action or inertia. The longest labor was 97 hours, and the longest interval between rupture of membranes and delivery was 107 hours. Nine patients had one or more previous childbirths. In two of these patients the previous parturition was also dystocial. The most frequent indication, singly or in association with other conditions, is dysfunctional uterine action (inertia). It was the only basis for a cesarian section in 19 cases; however, it occurred in association with brow presentation in 2 cases, with breech presentation in 5, with constriction ring in 3, and with cervical fibroid in 1. In 10 patients, borderline disproportions were the basic indication, but only 4 of this group had dysfunctional labor. Constriction ring was noted in five patients, but it was regarded as the basic reason for the cesarian section in only three. In the table a summary of data in this series of cases is compared to that in the past reported study. Eighteen patients were deemed actually infected and had intrapartum temperature elevations that ranged from 100 F (oral) to 104.2 F (rectal). Five patients had foul and purulent amniotic fluid. Twenty-two patients were considered potentially infected, having labors and/or ruptured membranes of more than 24 and 12 hours respectively. In this group there were three cases in which forceps delivery failed. With two exceptions, the convalescence of all mothers under this regimen was surprisingly mild. Only nine patients had morbidity. The longest period of morbidity was six days. This was in a patient who had adynamic ileus that lasted three days. One patient had a wound dehiscence necessitating resuturing and a long hospital stay of 36 days.

*Two Series of Potentially and Actually Infected Parturients Who Had Transperitoneal Cesarian Sections*

| | 1st Series | 2nd Series | Total |
|---|---|---|---|
| Number of patients | 100 | 40 | 140 |
| Incidence of morbidity * | 45 (45%) | 9 (22.5%) | 54 (38.6%) |
| *Actually infected patients* | 47 | 18 | 65 |
| Morbidity | 27 (57.4%) | 5 (27.7%) | 32 (49.2%) |
| Potentially infected patients | 53 | 22 | 75 |
| Morbidity | 18 (33.9%) | 4 (18.2%) | 22 (29.3%) |
| Failed forceps | 5 | 3 | 8 |
| Maternal deaths | 0 | 0 | 0 |
| Fetal deaths | 5 (5%) | 4 (10%) | 9 (6.4%) |
| Bladder injuries | 0 | 1 † | 1 |
| Peritonitis | 0 | 0 | 0 |

* Febrile postoperative morbidity.
† Classical cesarian section.

The morbidity in the current series of 40 cases is 22.5%, as compared to 45% in the previous report. The table, which compares the two series, indicates that we now have had 140 cases without any mortality and that there is a definite tendency toward a decreased postoperative febrile morbidity. In the first report, with no precedent to guide us, we had to learn by trial and error. It is now definitely believed that it is not the type of cesarian procedure that minimizes the postoperative sepsis hazard but rather the medical management that bolsters the patient's resistance, particularly chemotherapy. While we prefer the lower uterine segment procedure, the following interesting case can be cited to demonstrate the gratifying effects of antibiotics in a grossly infected patient who had a classical cesarian section.

L. L., a Negro primigravida, 34, had an intrapartum temperature of 101.4 F. The membranes ruptured one hour before the onset of labor. The labor was dysfunctional and could not be altered favorably by intravenous oxytocin injection administration. Penicillin was administered eight hours prior to the performance of a cesarian section. The amniotic fluid became purulent and had a foul odor. A cesarian section was scheduled after 31½ hours of labor. The bladder, catheterized preoperatively, was at a high level and was inadvertently opened. After this was sutured, it was deemed wiser to perform a classical cesarian section. The patient received whole blood on two occasions, and penicillin and streptomycin were given in large doses. She was out of bed on the 3rd postoperative day, had no febrile morbidity, and left the hospital with a normal baby on the 11th day. Examination of the afterbirth revealed a moderate degree of placentitis.

## SUMMARY AND CONCLUSIONS

A low cervical cesarian section, when indicated, equals any other procedure in assuring the patient's recovery when potential or actual infection is present. We believe the absence of postoperative septic mortality was due to the medical management and not to the particular cesarian section procedure used. Although antibacterial therapy, prophylactic or otherwise, is most important, previously established adjuncts of management must be utilized. Two or more antibacterial drugs were used with good effect. The administration and dosage of penicillin varies with the presence of potential or actual infection.

These conclusions are the result of a study of 140 consecutive parturients who were potentially or actually infected. The absence of any maternal mortality and a satisfactory postoperative recovery lead to the conclusion that this type of management yields the best results.

25 E. Washington (Dr. Kobak).

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**Psychotherapy in General Practice.**—There are many levels of psychotherapy, most of which the general practitioner can work at with assurance. We might use three large categories for illustration: (1) diminution of external pressures by rearranging the life situation when possible; (2) support by reassurance, ventilation, suggestion, discussion, re-evaluation, and re-education; (3) more thorough examination of those personality conflicts in which the causes are not known to the patient. Only this latter group may require the help of a psychiatrist if they do not benefit from other measures. Henry W. Brosin, M.D., Psychotherapy for the General Practitioner, *The Pennsylvania Medical Journal*, January, 1952.

# IMPORTANCE OF EARLY DIAGNOSIS IN ACUTE RHEUMATIC FEVER

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The fundamental cause of rheumatic fever remains obscure; nevertheless, progress is being made in conquering this disease, a leading killer of school age children and a leading cause of cardiac crippling in youth and young adults. The significant observation [1] that active rheumatic involvement may be "nipped in the bud" by the early administration of corticotropin (ACTH) or cortisone places even greater responsibility on the practicing physician. Practically all children acutely ill with rheumatic fever are first seen in the home or the office; hence the path is clear—every physician who sees children in his everyday practice must be thoroughly familiar with all clinical aspects of acute rheumatic fever and must be constantly on the alert for its occurrence.

## MANIFESTATIONS

The first objective is to become increasingly familiar with the early manifestations of the disorder. Few diseases approach rheumatic fever with respect to variety as well as variability in intensity of the signs and symptoms. The peak age of onset is about 6 to 8 years; however, onset may occur throughout school age (5 to 15 years). I have made an attempt, on the basis of data previously collected,[2] to list the manifestations of rheumatic fever and estimate their approximate incidence at the onset and during and after the course of the disease (table 1), i. e., the acute and subacute activity, periods of likelihood of recurrences, and residual cardiac damage.

Pain is a particularly significant manifestation. Although typically it is present in the region of the joints, it may occur in the abdomen, chest, and various muscle groups. When joint pain is associated with swelling, redness, and tenderness, as in migratory polyarthritis, the disease is readily recognized. About one-fourth of the attacks have this type of manifestation initially, whereas about two-thirds of patients at some time or other will have polyarthritis. Mild arthritis or myositis, or even tenosynovitis, occurs with about the same frequency, although the symptoms may be so mild as to escape early detection by the parents. When the mild or vague pains occur in the region of the joints, especially those of the upper extremity, they are apt to be of rheumatic origin. The rheumatic pain is present often on awakening in the morning and frequently causes the child to limp but tends to disappear in the evening, when the child is in bed. The nonrheumatic pains associated with fatigue or postural derangements may be confusing. Fatigue pains are commoner in somewhat younger children, are more pronounced after the child retires, and are improved usually when the involved region is massaged. Some of the so-called growing pains may be of rheumatic origin. Abdominal pain occurs frequently in children with rheumatic fever and, when not associated with pain in the extremities or other findings suggestive of the disease, may be difficult to evaluate. At some time or other, about one-eighth of the children with acute rheumatic fever have abdominal pain as the outstanding complaint. When pain in the region of the thorax is the chief complaint, it is usual to find other evidences of rheumatic fever. A general rule might be that, whenever a child of school age complains of pain, serious thought should be given to the possibility of a rheumatic infection as being causative.

Rheumatic carditis is extremely variable with respect to incidence and severity of early manifestations. If one suspects the possibility of rheumatic fever, careful attention must be given to the examination of the heart. Significant features are development of murmurs, systolic or diastolic; alterations in rhythm, such as tic-tac and gallop rhythms; changes in the magnitude of heart tones; development of friction rubs; and shifts in the size and configuration of the heart. When there is no evidence of congenital heart disease or renal disease, the development of signs of cardiac decompensation in the child must be considered as of rheumatic origin until proved otherwise. It is estimated that about 10% of children with rheumatic fever have a cardiac murmur without other evidences of the disease.

Whether chorea minor is exclusively a manifestation of rheumatic fever is not known.[3] The incidence of residual heart disease is less in patients whose illness is compatible with Sydenham's chorea without other evidences of rheumatic fever than in those who likewise

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[1] Hench, P. S., and others: The Effects of Adrenal Cortical Hormone 17-Hydroxy-11-Dehydrocorticosterone (Compound E) on the Acute Phase of Rheumatic Fever: Preliminary Report, Proc. Staff Meet., Mayo Clin. **24**: 277-297, 1949. Massell, B. F., and others: The Clinical Response of Rheumatic Fever and Acute Carditis to ACTH, New England J. Med. **242**: 641-647 and 692-698, 1950. Hench, P. S.; Slocumb, C. H.; Polley, H. F., and Kendall, E. C.: Effect of Cortisone and Pituitary Adrenocorticotropic Hormone (ACTH) on Rheumatic Diseases, J. A. M. A. **144**: 1327-1335 (Dec. 16) 1950. Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: Effects of Cortisone Acetate and Pituitary ACTH on Rheumatoid Arthritis, Rheumatic Fever and Certain Other Conditions: A Study in Clinical Physiology, Arch. Int. Med. **85**: 545-666, 1950. Wilson, M. G., and Helper, H. N.: Effect of Pituitary Adrenocorticotropic Hormone (ACTH) in Acute Rheumatic Carditis, J. A. M. A. **145**: 133-138 (Jan. 20) 1951. Dorfman, A.; Bergenstal, D. M.; Benditt, E. P., and Moses, F. E.: Effect of Pituitary Adrenocorticotropic Hormone (ACTH) on Rheumatic Fever, Proc Am. Ped. Soc. (May 9-10) 1950, A. M. A. Am. J. Dis. Child. **80**: 885-886, (Nov.) 1950. Barnes, A. R.: Effects of Cortisone and ACTH in 14 Patients with Acute Rheumatic Fever, Proc. Staff Meet., Mayo Clin. **25**: 478-479, 1950. Massell, B. F., and Warren, J. E.: Effect of Pituitary Adrenocorticotropic Hormone (ACTH) on Rheumatic Fever and Rheumatic Carditis, J. A. M. A. **144**:1335-1341 (Dec. 16) 1950. Harris, T. N.; Abrams, W. B.; Leo, T. F. P., and Hubbard, J. P.: Preliminary Observations on the Effects of Cortisone in the Treatment of Acute Rheumatic Carditis, Proc. Am. Ped. Soc. (May 9-10) 1950, Am. J. Dis. Child. **80**: 884-885, 1950. McEwen, C., and others: The Effect of Cortisone and ACTH on Rheumatic Fever, Bull. New York Acad. Med. **26**: 212-228, 1950.

[2] Hansen, A. E.: Rheumatic Fever: Acute Rheumatic Fever and Acute Rheumatic Heart Disease, in Meyers, J. Arthur, and McKinlay, C. A., editors: The Chest and the Heart, Springfield, Ill., Charles C Thomas, Publisher, 1948, sec. 2, pp. 1543-1578.

[3] Kagan, B. M., and Mirman, B.: Sydenham's Chorea: A Syndrome for Differential Diagnosis, J. Pediat. **31**: 322-332, 1947. Kagan, B. M.; Rosner, D. C., and Rosenblum, P.: Chorea (Sydenham): A Study of 58 Additional Patients, Am. J. Dis. Child. **78**: 306-313, 1949. Timme, A. R.: The Choreiform Syndrome: Its Significance in Children's Behavior Problems, California Med. **68**: 154-158, 1948.

have other manifestations of the disease. Nevertheless, from a practical viewpoint, the school age child who has the typical dystonia, muscle weakness, and emotional change should be considered as having rheumatic disease until proved otherwise.

Subcutaneous fibroid nodules are said to be found in about 15% to 20% of patients with rheumatic fever at some time or other over a period of years. The presence of the nodules is important from several viewpoints: First, they are almost pathognomonic of the disease; second, they usually occur in severely involved patients; third, they tend to occur during the subsiding phase of an acute attack. The frequency with which they are discovered seems to vary directly with the intensity with which they are sought.

TABLE 1.—*Outstanding Signs and Symptoms with Approximate Incidence of Manifestation at Onset, During, and After the Course of Rheumatic Fever*

| | Incidence, % | |
|---|---|---|
| Manifestation | At Onset | Later |
| Pain | | |
| In extremities | | |
| Polyarthritis | 25 | 66 |
| Mild arthritis or myositis | 25 | 66 |
| In abdomen | .. | 12 |
| In chest | Few | (?) |
| Carditis | .. | 80 |
| Murmurs with enlargement | Many | Many |
| Gallop rhythm | Few | (?) |
| Muffled tones or pericardial rubs | Few | (?) |
| Decompensation | Few | 25 |
| Murmurs alone | Many | 10 |
| Chorea minor | 25 | 50 |
| Subcutaneous fibroid nodules | 2.5 | 20 |
| Skin changes | 2.5 | 12 |
| Miscellaneous (nephritis, pyelitis) | 1 | 5 |
| Constitutional symptoms (anorexia, weight loss—or failure to gain—pallor, epistaxis, fatigability, upper respiratory infections, listlessness, fever, nervousness, swelling) | Many | 90 |

Erythema rheumatica (annulare) is the most typical of the skin manifestations of the disease, but erythema nodosum, erythema multiforme, purpura, petechiae, and urticaria may occur.

Although patients with rheumatic fever occasionally have symptoms compatible with acute glomerulonephritis, the interrelationship between the two diseases has not been delineated. Occasionally iritis, orchitis, pleuritis, pneumonitis, encephalitis, and other bizarre types of involvement are believed to be manifestations of rheumatic fever.

The constitutional symptoms as indicated in table 1 are important manifestations of rheumatic infection, and in some children the evidences of the disease may be no more definite than might be attributed to many other disorders. In a recent study LeBus and Panos [4] found that 9 out of 10 of their patients with rheumatic fever had some one or combination of these symptoms. Epistaxis was a prominent symptom in 18% of 91 children studied by them.

## DIAGNOSIS

Thorough familiarity with the manifestations of acute rheumatic fever is essential, as an unequivocal diagnosis cannot be made on the basis of laboratory tests. True enough, one may obtain assistance in arriving at a diagnosis by evaluating the leukocyte and differential counts, erythrocyte sedimentation rate, Weltmann reaction, antistreptolysin titer, antihyaluronidase, mucoproteins, antifibrinolysins, blood culture, electrocardiographic tracings, roentgenographic studies, vital capacity, venous pressures, and biopsy. The final diagnosis, however, rests on the interpretation of the various clinical findings. The patient's failure to react favorably to administration of sulfonamides or antibiotics may be significant in directing one's thoughts to the possibility of rheumatic fever. Helpful in this regard is the knowledge of disorders likely to be confused with acute rheumatic fever.

## DIFFERENTIAL DIAGNOSIS

Some time ago, I reviewed various textbooks and periodicals; there were mentioned about 60 different disorders to be considered in the diagnosis of rheumatic fever and rheumatic heart disease. A study [5] was made of the referring and admitting diagnoses for 271 children with rheumatic fever. Dr. Howard LeBus collected further data of this type, so that there are now available the records of 435 children who were admitted to the University of Minnesota Hospitals and the University of Texas Medical Branch Hospitals. The diagnosis of rheumatic fever had been made on admission in three-fourths of these children; however, it was apparent that in some the diagnosis should have been made earlier. The types of disorder that caused confusion in the remaining fourth of the children were as follows: appendicitis, 25%; "nervousness," 23%; fulminating infection, 21%; low grade infection, 14%; poliomyelitis, 8%; osteomyelitis, 5%; sickle cell disease, 2%, and rheumatoid arthritis, 2%. Another approach [6] to the problem of the differential diagnosis has been to study the diagnoses made for almost a thousand children admitted to the pediatric service during one year to ascertain which conditions involved symptoms suggestive of rheumatic fever. In table 2 are summarized the disorders found to be especially important as determined from the above two approaches.

TABLE 2.—*Disorders Important in the Differential Diagnosis of Rheumatic Fever in Relation to Types of Manifestations*

| | | |
|---|---|---|
| Pain and Fever<br>Appendicitis<br>Poliomyelitis<br>Osteomyelitis | Rheumatoid arthritis<br>Sickle cell disease<br>Meningococcemia | Leukemia<br>Hodgkin's disease<br>Nephritis |
| Nervousness<br>Emotional disorder | Hyperthyroidism | Malnutrition |
| Fulminating infection<br>Sepsis | Bacterial endocarditis | Pneumonia |
| Low grade infection<br>Sinusitis | Infected tonsils and adenoids | Brucellosis |

In some diseases the "therapeutic test" serves a valuable purpose with respect to diagnosis. To some extent with reference to rheumatic fever, the effect of the administration of salicylates has been of diagnostic value to the clinician. The question arises as to whether the use of corticotropin or cortisone might constitute another "therapeutic test" in the diagnosis of rheumatic fever. Adrenocortical hormone, directly or indirectly through the influence of the pituitary adrenocorticotropic hormone, exerts nonspecific influences on fever, pain, and general well-being. From this viewpoint it seems that the adrenocortical hormone would be of limited usefulness diagnostically. However, the reported spectacular recession of pain (also swelling and tenderness) in rheumatic polyarthritis, associated with loss of febrile reaction, fall in erythrocyte sedimentation rate, and particularly the decline in evidences of early carditis, indicates that possibly there has been brought to the fore a new type of diagnostic tool as well as a therapeutic agent. As encouraging as the new hormonal therapy has been in early rheumatic heart disease, its effectiveness in well-established rheumatic carditis has been disappointing.

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[4] LeBus, H., and Panos, T. C.: Study of 91 Children from Rheumatic Fever in the Gulf Coast Area of Texas, Texas Rep. Biol. & Med. **10**: 45-52 (Spring) 1952.

[5] Hansen, A. E.: Conditions Causing Confusion in the Diagnosis of Rheumatic Fever in Children: Analysis of Diagnosis Made by Practicing Physicians in 271 Rheumatic Subjects, J. A. M. A. **121**: 987-991 (March 27) 1943.

[6] Hansen, A. E.: Responsibilities of the Physician in the Problem of Rheumatic Fever in Children, Journal-Lancet **63**: 138-141, 1943.

In many medical centers throughout the world, studies are now being made that eventually will clarify the therapeutic role of adrenocortical hormone in rheumatic fever. Inasmuch as conditions vary in regard to important features of the disease from one part of the country to the other, some controversial conclusions may be expected. Until complete agreement is reached, what is to be the procedure for the physician seeing the child early in the illness at home, far removed from a medical center? Heretofore, it has been acceptable practice to pronounce the condition in a given case as "possible rheumatic fever and rheumatic heart disease," and at the same time to adhere to recognized procedures in management. In questionable cases the physician was allowed plenty of time to make his final decision regarding the diagnosis. In the event rheumatic fever was not responsible for the symptoms, it was possible to allay parental fears and thereby prevent the creation of emotional problems that may be derived from the prospect of the particular child's becoming a "cardiac cripple."

The suggested procedure is (1) careful consideration of the details of the history and physical examination and (2) laboratory studies, including routine blood cell counts, erythrocyte sedimentation rate, and special laboratory studies if available. Of course, these steps are the same as for any other diagnostic problem. If the evidence points to the possibility of early rheumatic fever, it seems that one may give a "therapeutic trial" with corticotropin. The dangers of overdosage with adrenocortical hormone associated with prolonged administration are well known (full moon facies, acne, striae, lethargy, hirsutism, depletion of body potassium, sodium retention with water accumulation, and decreased resistance to infection). Because of the possible harmful effects, it is felt that the initial trial should be with minimal dosage for the shortest duration possible. At the present time it appears that 0.010 or 0.015 gm. of corticotropin given every six hours intramuscularly for four to six days, and possibly up to 10 days, should serve the purpose and still be safe for the average child. If evidence of early carditis is definite, one may give twice this amount for the first three days. Although the dosage is somewhat higher, cortisone has the advantage that it may be given orally. The child should be at complete bed rest. Temperature, pulse, respiration, blood pressure, and body weight should be studied in conjunction with critical examination of the patient with particular reference to the heart. If at all possible, daily total eosinophil counts should be used for determination of therapeutic range of effectiveness. If the evidence of improvement is not clear-cut after such a trial period, every attempt should be made to have the child hospitalized for more detailed study. In the event a favorable effect seems to have been obtained, with subsidence of pain and fever, decreasing sedimentation rate, and disappearance of cardiac murmurs, then the follow-up care should be the same as for any other child afflicted with acute rheumatic fever.

## COURSE OF DISEASE

Of major importance in caring for the child with rheumatic fever is the evaluation of the status of activity of infection. Again, this is accomplished on the clinical basis by consideration of history, physical examination, and the results of laboratory studies. If we bear in mind the possibilities of the duration of an attack on the basis of past experiences, at least we may avoid one of the greatest dangers, namely, too early release of the patient from critical observation. Data from McCue and Galvin [7] have been summarized and presented schematically (fig. 1) to show the extreme variability in an attack of rheumatic fever. In about one-third of the patients, the duration was less than four months. In about 20%, the duration was over one year with a small proportion having rheumatic activity three to five years. A rather extensive experience will be required for evaluation of the effect of the administration of corticotropin on the average duration of an attack as well as the consequent degree of cardiac damage.

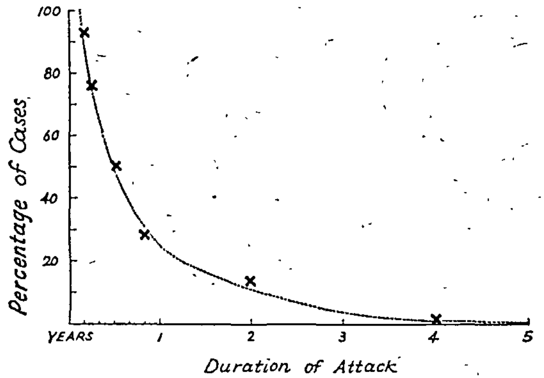

Fig. 1.—Schematic representation of the variability in duration of early (first and second) attacks of rheumatic fever (McCue and Galvin [7]).

Experience with three children is summarized in figures 2, 3, and 4 by my colleague Dr. R. W. Carabelle, to illustrate some of the features of the effect of corticotropin therapy in rheumatic fever.

A favorable effect was obtained in case 1 as indicated by cessation of joint pain, decrease in total white cell count, sharp decline in the erythrocyte sedimentation rate, and decrease in the area of the cardiac silhouette. No significant alteration was noted in the systolic murmur at the apex. In case 2 there was rapid disappearance of pain but no decided changes in the laboratory findings. The least one can say is that during this time interval the cardiac status was not aggravated. In case 3, although there was some symptomatic improvement with respect to pain, fever, and evidences of heart failure, the other clinical and laboratory findings remained unaltered. This child had a severely damaged heart as a result of his first attack one year previously.

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[7] McCue, C. M., and Galvin, L. F.: A Preliminary Report on Rheumatic Fever in Virginia, J. Pediat. 33: 467-483, 1948.

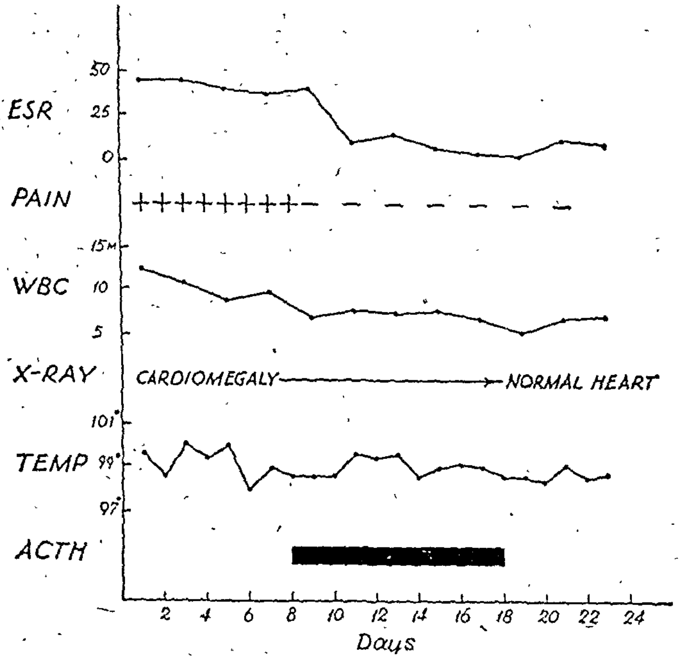

Fig. 2 (Case 1).—Graphic illustration of observations in an 11-year-old boy who had his initial attack of rheumatic fever with onset of polyarthritis and fever six weeks before admission. He was given 0.06 gm. of corticotropin daily in four divided doses for a period of 10 days. (ESR, erythrocyte sedimentation rate.)

## MANAGEMENT

Administration of corticotropin or cortisone does not seem to alter the over-all treatment of children with rheumatic fever. The intake of potassium should be adequate and excessive amounts of sodium chloride avoided. The following outline includes the major points in management of the patient who is kept under the care of the family physician.

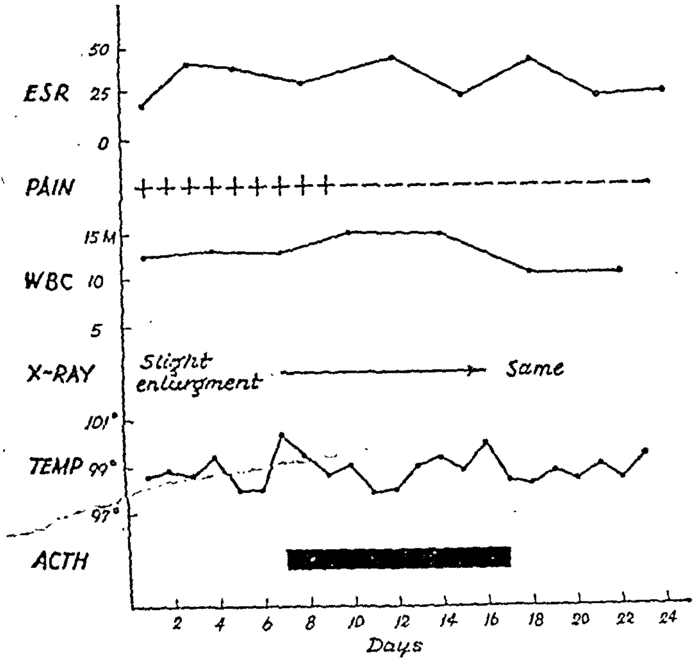

Fig. 3 (Case 2).—Graphic illustration of observations in a 12-year-old girl with onset of joint pain and fever four weeks before admission. She was given 0.06 gm. of corticotropin daily in four divided doses for a period of 10 days. When she was almost 4 years of age, the child had joint pains and the parents were informed by the family physician that she had a heart murmur.

Acute Phase—Symptomatic

*Pain and Fever:* bed rest, salicylates (0.10 to 0.15 gm. per kilogram of body weight), e. g., aspirin; nutritious diet; oxygen, especially with carditis; and comfort and security.

*Chorea Minor:* bed rest, quiet environment, protection from injury, nutritious diet, and sedation (phenobarbital sodium is satisfactory usually).

*Decompensation:* strict bed rest, oxygen, sedation, low sodium diet, diuretics, and digitalis.

Subsiding Phase—Graduated Physical Exercise

Nutritious diet with iron and vitamin supplements, diversional therapy, physical therapy, educational program, positive program for increasing physical activity, psychological conditioning to prevent overanxiety, and removal of foci of infection (use of sulfonamides or penicillin during such times).

Quiescent Phase—Prevention of Recurrences

Sulfonamide, penicillin or other antibiotics, nutritious diet, periodic examinations.

From experiences with corticotropin in the treatment of rheumatic infection, there is every reason to believe that children so treated are likely to experience recurrent attacks. Only 20% to 30% of children afflicted with rheumatic fever have but a single attack. Although two or three attacks are usual, some patients apparently will have up to 10 or more different rheumatic episodes. The younger the child is at the time of the first attack, the longer is the period he or she is likely to have a recurrence. The interval between attacks may be weeks or years, 67% of subsequent attacks occurring within three years and 80% within five years of an attack.

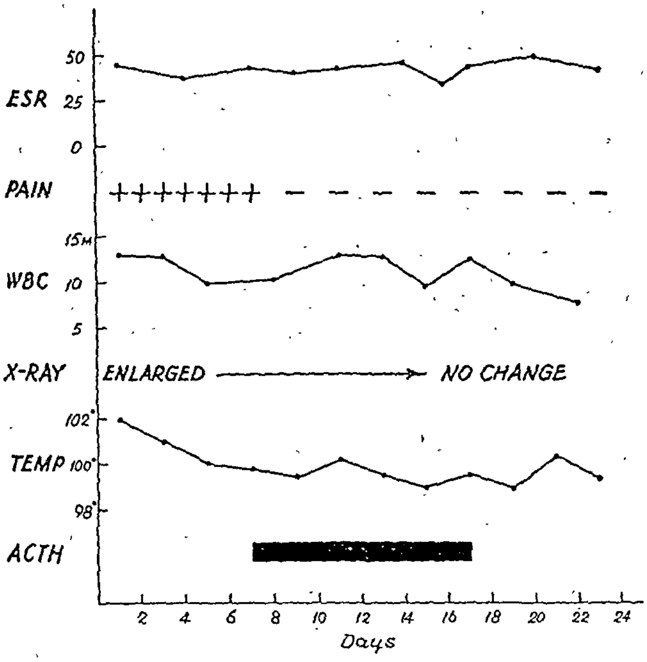

Fig. 4 (Case 3).—Graphic illustration of observations in a 9-year-old boy with onset of severe migratory polyarthritis, fever, and dyspnea seven days prior to admission. He was given 0.06 gm. of corticotropin daily in four divided doses for 10 days. He had had his initial attack of rheumatic fever about one year previously.

In some parts of the country the problem of rheumatic heart disease has been made a community responsibility, with extensive programs in well-equipped hospitals and convalescent homes. In many of the states, the child handicapped with heart disease is eligible for assistance under the various state crippled children's programs. In many convalescent homes and under organized programs of various types, the problem of prevention of recrudescences has been well worked out. Administration of penicillin during the acute phase of beta hemolytic streptococcic infections, and also in the carrier state, has proved to be effective.[8] All too few practicing physicians have facilities for bacteriological study; hence the use of penicillin in this way has its limitations in actual practice. The effectiveness of continuous administration of penicillin [9] or of other antibiotic agents, though encouraging, has not been evaluated adequately to warrant recommendation. An incidental factor to consider is that of expense. On the other hand, a considerable experience with the use of sulfonamides has been gained during the past 15 years. In a summary [2] of the work of several groups, it was found that, with daily sulfonamide administration for 885 patient-years, there were 18 recurrent attacks. In 723 patient-years of observation with control subjects, not receiving sulfonamides, there were 140 recrudescences. In most of the earlier studies sulfanilamide was employed, but, in recent years, sulfadiazine seems to have become the drug of choice.[10] For children up to 10 years of age, 0.25 gm. is given with the morning and evening meals; for children over this age the dose is 0.5 gm. Jackson and co-workers [11] have emphasized the importance of an adequate diet in the prevention of recurrences.

## CONCLUSION

The physician plays a particular role in the problem of rheumatic fever in childhood by emphasizing the importance of adequate follow-up for the child with rheumatic fever. For all patients, including those who have been given corticotropin (ACTH) or cortisone for the treatment of early rheumatic fever, a prophylactic regimen should be instituted as soon as there are evidences that the activity of the infection has subsided. Recurrences may then be greatly lessened, the incidence of bed-confining illness may be diminished, and the number of "cardiac cripples" may thus be reduced. From a consideration of the various phases of the rheumatic fever problem, one point is indisputable: the drive of medical science to discover the fundamental cause and cure of rheumatic fever must continue in order to conquer one of the most important problems of the childhood period.

8. Massell, B. F.: Symposium on Specific Methods of Treatment: Salicylates, Hormones and Penicillin in the Treatment of Rheumatic Fever, M. Clin. North America **34**: 1419-1434, 1950. Kohn, K. H.; Milzer, A., and MacLean, H.: Oral Penicillin Prophylaxis of Recurrences of Rheumatic Fever: Interim Report on Method After 3 Year Study, J. A. M. A. **142**: 20-25 (Jan. 7) 1950. Denny, F. W., and others: Prevention of Rheumatic Fever—Treatment of the Preceding Streptococcic Infection, ibid. **143**: 151-153 (May 13) 1950. Weinstein, L., and Perrin, T. S.: The Treatment of Scarlet Fever with Penicillin G Administered Orally Three Times a Day, J. Pediat. **37**: 844-853, 1950.

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10. Baldwin, J. S.: Sulfadiazine Prophylaxis in Children and Adolescents with Inactive Rheumatic Fever, J. Pediat. **30**: 284-288, 1947.

11. Jackson, R. L.; Kelly, H. G.; Rohret, C. H., and Duane, J. M.: Rheumatic Fever Recurrences in Children Without Sulfonamide Prophylaxis: An Evaluation of Environmental Factors, J. Pediat. **31**: 390-402, 1947.

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# CLINICAL EXPERIENCE WITH STREPTOKINASE AND STREPTODORNASE IN TUBERCULOSIS

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*and*
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Streptokinase and streptodornase are useful topical adjuncts in the surgical treatment of certain acute and chronic diseases. The properties of these compounds and the results of treatment have been reported in detail elsewhere.[1] Streptokinase is a catalytic agent acting on a fibrin-lysing system present in the euglobulin fraction of human blood. The agent activates the fibrin-lysing system, which causes liquefaction of fibrin. Streptokinase also inhibits the change of fibrinogen to fibrin. Tests of streptokinase for protein give positive results. The substance is rendered inert by trypsin and activated papain, does not act upon casein, peptone, or gelatin, and can be isolated from the dissolved fibrin clot after completion of liquefaction. Streptokinase is antigenic, and an antikinase may develop in human beings as the result of antecedent hemolytic streptococcic infection or prolonged treatment with streptokinase. Streptodornase is an enzyme having the capacity to hydrolyze desoxyribose nucleoprotein. Kunitz [2] has described the properties of streptodornase, which he called desoxyribonuclease. Streptodornase is well preserved if stored at about 4 C and has a specific action. In highly diluted solutions, the enzyme has little action. The optimum pH for activity ranges from 6.8 to 8.2. Heat inactivates the enzyme rapidly, and exposure to a temperature of 55 C for 15 minutes destroys more than 90% of the substance. The enzyme system requires catalytic activation by the magnesium or manganese ion. To maintain activity, the ampules containing the desiccated mixture of streptokinase and streptodornase should be stored at a temperature of about 4 C. The material may be used in solution or as an ointment but must be stored properly. The contents of an ampule are readily soluble in 20 cc. of sterile isotonic sodium chloride solution. Vigorous shaking should be avoided. When prepared, the solution should be used immediately or it will lose its potency on standing at room temperature, especially in relation to streptodornase. When divided doses of an ampule are administered, the remainder is placed in a sterile container, fast-frozen, and stored in a deep freeze

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and the Department of Preventive Medicine, the Johns Hop
School of Medicine (Dr. Long).

until needed for therapy. In the process of thawing such tubes, heating above 35 C should be avoided. When used as an ointment, 100,000 units of streptokinase and 60,000 units of streptodornase are incorporated in 10 cc. of lubafax,® a water-soluble base. The addition of antibiotics to this suspension may prove useful to control surface infection. We have used 250 mg. of soluble crystalline aureomycin. The advantages of the use of such a mixture is readily appreciated in the treatment of superficial infections or burns.

It must be emphasized that the enzymes do only two things when they are placed in proximity to the area of infection. Streptokinase causes the liquefaction of fibrin, and streptodornase causes the hydrolysis of desoxyribose nucleoprotein and desoxyribose nucleic acid. The healing of infected wounds is enhanced by the removal of these substances, but the use of the enzymes does not completely eliminate the need for the application of the usual therapeutic surgical procedures. Streptokinase and streptodornase are only surface acting compounds producing a selective chemical débridement of the infected wound. Since they are surface acting compounds, the best results have been obtained in cases in which complete exteriorization of the infected area has been possible. If this is not possible owing to anatomic location, the means for drainage should be as adequate as possible. Adequate circulation to the local area is necessary, since the fibrin-lysing system of the blood must be carried to the affected area, for streptokinase does not have the ability to lyse fibrin by itself. Likewise, streptodornase must be activated by magnesium or manganese ion, which comes from the blood stream. When necessary, the blood supply to the affected part may be improved by heat, by elevation to decrease edema, by blocking the regional portion of the sympathetic nervous system with procaine, or by sympathectomy.

Necrotic tissue, which prevents satisfactory contact of the enzymes with the constituents of the wounds to be hydrolyzed, must be removed. Sloughing tissue, in addition, may contain trypsin, which inactivates streptokinase. Slough is an excellent culture medium for bacteria. Further, this dead tissue prevents proper contact of concurrently given chemotherapeutic or antibiotic agents with bacteria that may be buried in the slough. Normal reparative processes are inhibited by loculated collections of purulent material. Living leukocytes will not function in a pool of pus, since effective phagocytosis is obtained only when the leukocytes are in an ameboid state. The phagocytic activity of the leukocytes will be considerably enhanced by the removal of desoxyribose nucleic acid, a constituent of pus, which clumps leukocytes and prevents effective action. In like manner, the removal of fibrin permits better action of the leukocytes. The frequency of treatment will be conditioned by the severity of the infection and the response to therapy. Badly infected lesions may be treated every four hours, while in less severe cases only one application of the enzymes daily may be required.

Toxic effects from application to external wounds have as yet not been seen. Minor headaches and aching have been seen *more frequently in the instances in which* closed spaces were treated. When put into a closed space, such as the pleural cavity or knee joint, streptokinase and streptodornase usually will produce an elevation of temperature that occasionally may be moderately high. The products of digestion are probably one cause for the elevation of temperature; a second factor is the direct result of the cleansing produced by these compounds. The lysis of fibrin and desoxyribose nucleoprotein from the walls of a closed space may release bacteria that have been imprisoned, for it is not uncommon to obtain positive cultures after several days of treatment when previous cultures have been sterile. Prothrombin times determined in persons treated with streptokinase and streptodornase did not show significant alteration from the normal. Hematomas and areas of ecchymosis were not seen. Bleeding was not produced by the topical application of these compounds. Success did not always follow the use of streptokinase and streptodornase, but the results of treatment were uniformly good. A careful estimate of the situation must be made when effective action of the compounds is not obtained, because it is possible that some important obstacle to wound healing has been overlooked. The results in the treatment of pyogenic infections of the soft tissues were excellent. Those obtained in pyogenic osteomyelitis were encouraging, but sufficient time has not elapsed to permit a final analysis. Also, the results obtained in the treatment of extrapulmonary tuberculosis have been encouraging.

### REPORT OF CASES

CASE 1.—A 26-year-old Negro was admitted to the orthopedic service of the Veterans Administration Hospital on May 5, 1948, for a tuberculous spondylitis of the second and third lumbar vertebrae. A spinal fusion was performed, and the patient was discharged on Jan. 26, 1949. He was seen at irregular intervals and finally admitted to the surgical service with a psoas abscess of the right side on May 20, 1949. Incision and drainage, with release of about 300 cc. of *purulent material,*

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1. Garner, R. L., and Tillett, W. S.: Biochemical Studies on the Fibrinolytic Activity of Hemolytic Streptococci: I. Isolation and Characterization of Fibrinolysin, J. Exper. Med. **60**: 239-254 (Aug.) 1934. Garner, R. L., and Tillett, W. S.: Biochemical Studies on the Fibrinolytic Activity of Hemolytic Streptococci: II. Nature of the Reaction, ibid. **60**: 255-267 1934. Miller, J. M.; Ginsberg, M.; Lipin, R. L., and Long, P. H.: Clinical Experience with Streptokinase and Streptodornase, J. A. M. A. : 620-624 (March 3) 1951. Sherry, S.; Tillett, W. S., and Christensen, R.: Presence and Significance of Desoxyribose Nucleoprotein in the Purulent Pleural Exudates of Patients, Proc. Soc. Exper. Biol. & Med. **68**: 179-184 (May) 1948. Sherry, S.; Tillett, W. S., and Read, C. T.: The Use of Streptokinase-Streptodornase in the Treatment of *Hemothorax,* J. Thoracic Surg. **20**: 393-417 (Sept.) 1950. Tillett, W. S.: The Fibrinolytic Activity of Hemolytic Streptococci in Relation to the Source of Strains and Cultural Reactions, J. Bact. **29**: 111-130 (Feb.) 1935. Tillett, W. S.; Edwards, L. B., and Garner, R. L.: Fibrinolytic Activity of Human Streptococci: The Development of Resistance to Fibrinolysis Following Acute Hemolytic Streptococcus Infections, J. Clin. Invest. **13**: 47-78 (Jan.) 1934. Tillett, W. S., and Garner, R. L.: The Fibrinolytic Activity of Human Streptococci, J. Exper. Med. **58**: 485-502 (Oct.) 1933. Tillett, W. S., and Sherry, S.: The Effect in Patients of Streptococcal Fibrinolysin (Streptokinase) and Streptococcal Desoxyribonuclease on Fibrinous, Purulent, and Sanguinous Pleural Exudations, J. Clin. Invest. **28**: 173-190 (Jan.) 1949. Tillett, W. S.; Sherry, S., and Christensen, L. R.: Streptococcal Desoxyribonuclease: Significance in Lysis of Purulent Exudates and Production by Strains of Hemolytic Streptococci, Proc. Soc. Exper. Biol. & Med. **68**: 184-188 (May) 1948. Tillett, W. S., and others: Streptococcal Enzymatic Debridement, Ann. Surg. **131**: 12-22 (Jan.) 1950. Tillett, W. S.; Sherry, S., and Read, C. T.: The Use of Streptokinase-Streptodornase in the Treatment of Chronic Empyema, J. Thoracic Surg. **21**: [illegible] (April) 1951.

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were done on July 25. Tubercle bacilli were isolated from this pus after inoculation of it into a guinea pig. Streptomycin, 0.5 gm., was given intramuscularly twice a day from July 25 through Nov. 30 and from March 10, 1950, through June 1. Fifty thousand units of aqueous crystalline penicillin G was given intramuscularly every three hours from Aug. 4, 1949, through Aug. 17 and from Oct. 1 through Oct. 15. Three hundred thousand units of crystalline procaine penicillin G in oil was given intramuscularly once a day from Oct. 16 through Nov. 10. Aqueous crystalline penicillin G, 50,000 units, was given intramuscularly every three hours from Dec. 18 through Dec. 22 and March 10, 1950, through April 6. One hundred thousand units of aqueous crystalline penicillin G was given intramuscularly every three hours from May 12 through May 31. Another spinal fusion was done on Aug. 4, 1949, after which the patient was returned to the general surgical service for secondary closure of the wound created for drainage of the psoas abscess. After this procedure was done, a small sinus tract persisted. A left psoas abscess, from which tubercle bacilli were eventually isolated, began to develop. Incision and drainage of this abscess was done on March 10, 1950. Streptokinase, 45,000 units, and 15,750 units of streptodornase were put into the abscess cavity on March 13. Two further courses of streptokinase, 135,000 units, and streptodornase, 47,250 units, were given on March 16 and 19. Cultures for other bacteria were sterile on March 22. The wound was closed secondarily on March 23, about two weeks after the initial incision. Healing of this wound was complete on April 9. The sinus on the right side, which had not been treated with streptokinase and streptodornase during this period, had not changed in appearance or character. The treatment of this sinus, which had been present since July 7, 1949, was started on March 28. An average of 40,000 units of streptokinase and 19,000 units of streptodornase was placed in the sinus tract 18 times, at intervals of about two days, between March 28 and May 12, when the wound was closed secondarily. There was roentgenologic evidence that the sinus tract extended directly to the lumbar vertebrae at the site of the earlier spinal fusion. The persistence of the tract might be explained by this evidence. Healing was prompt, and the patient was discharged on June 2, 1950. A follow-up report on May 23, 1951, revealed that the patient had remained well.

Case 2.—A 52-year-old Negro was admitted to the Veterans Administration Hospital on March 9, 1949, with a left gluteal abscess of about three months' duration. Incision and drainage, with release of about 300 cc. of purulent material, was done on March 11. Culture and biopsy from the abscess showed tuberculosis. Fifty thousand units of aqueous crystalline penicillin G was given intramuscularly every three hours from March 11 through June 2. Streptomycin, 0.5 gm., was given intramuscularly twice a day from March 23 through May 7. The roentgenogram of the left hip showed a slight area of rarefaction in the greater trochanter, but further change had not occurred roentgenographically at the end of six weeks of observation. The tract became much smaller, and a secondary closure was done on May 26. A small draining sinus persisted until about the time of discharge, on June 27, 1949, but the wound healed finally. The patient was readmitted on Jan. 10, 1950, for treatment of a mass in the left supraclavicular region. Biopsy from this area showed chronic inflammation. This wound healed well. During the patient's stay in the hospital, a mass, which subsequently became fluctuant, developed in the left buttock at the site involved previously, upon the first admission. Incision and drainage of a large abscess was done on Feb. 20. Tubercle bacilli were isolated from the purulent material. Crystalline procaine penicillin G, 300,000 units in oil, was given intramuscularly twice a day from Jan. 24 through Feb. 6. Aqueous crystalline penicillin G, 100,000 units, was given intramuscularly every six hours from Feb. 20 through March 4. Sulfadiazine, 0.5 gm., was given orally four times a day from Jan. 24 through Feb. 6. Streptomycin, 0.5 gm., was given intramuscularly twice a day from Feb. 18 through April 10. Streptokinase, 90,000 units, and 30,500 units of streptodornase were applied topically to the wound three times between Feb. 23 and Feb. 28. The wound became healthy and clean. The roentgenogram of the greater trochanter now showed definite irregular mottled areas of radiolucency. The greater trochanter was removed through a separate incision on March 7. The wound was closed primarily, and healing was uneventful. A secondary closure of the wound, resulting from the incision and drainage of the abscess, was done on March 27. The wound healed without complication, and the patient was discharged on April 10.

Case 3.—A 24-year-old Negro was admitted to the Veterans Administration hospital on June 14, 1950, with a severe bilateral tuberculous lymphadenitis, which began in Sept., 1949. Subsequently, tuberculosis of the right knee developed. The patient was seen at another hospital and treated with streptomycin. Numerous small draining sinuses were present in the cervical area. The lymph nodes were markedly enlarged. The roentgenogram of the chest showed a minimal tuberculous lesion of the upper lobe of the right lung. Culture of the purulent material obtained from one of the cervical sinuses was sterile aerobically and anerobically for pyogenic bacteria but positive for Mycobacterium tuberculosis. Aqueous crystalline penicillin G, 50,000 units, was given intramuscularly every four hours from June 18 to June 21, when the dose was changed to 100,000 units every six hours and continued to July 18. Streptomycin, 0.5 gm., was given intramuscularly twice a day from June 19 to July 24. Streptokinase, 20,000 units, and 9,500 units of streptodornase were injected into the sinuses in the right side of the neck on June 18 and June 20. A dissection of the lymph nodes of the right side of the neck was done on June 23. During the dissection, a collection of about 10 cc. of purulent material was evacuated from an area posterior to the sternocleidomastoid muscle and extending behind the carotid sheath toward the midline of the neck. Drainage was provided through one of the posterior sinus tracts. The main wound was closed. Streptokinase, 50,000 units, and 23,750 units of streptodornase were inserted into the posterior drainage tract on June 28 and June 30. A resection of the lymph nodes in the left side of the neck was done on July 10. A Penrose drain was brought out of the lower end of the wound, which was otherwise closed. Healing of both wounds was uneventful. The patient was discharged from the hospital on July 26.

Case 4.—A 25-year-old Negro was admitted to the Veterans Administration hospital on Dec. 12, 1950, with a mass 2.5 cm. in diameter over the right seventh rib at the costochondral junction. Incision and drainage with evacuation of pus was done on Dec. 19. Biopsy at this time showed tuberculosis. Streptokinase, 25,000 units, and 15,000 units of streptodornase were applied topically to the wound daily from Dec. 21 through Jan. 1, 1951. Streptomycin, 0.5 gm., was given intramuscularly from Jan. 2 through March 8. Crystalline procaine penicillin G, 300,000 units in oil, was given intramuscularly once a day from Jan. 7 through Jan. 12, from Feb. 9 through Feb. 16, and from March 5 through March 8. Four grams of paraaminosalicylic acid was given orally three times a day from Jan. 18 through March 8. A secondary closure was done on Jan. 2, with healing by Jan. 15. The patient was transferred to the medical service for treatment of the pulmonary tuberculosis. The patient was again seen on April 26 for a mass about 2.5 cm. in diameter over the left seventh rib; this had been present for about one month. The wound on the right side was healed. Streptomycin, 1 gm., had been given intramuscularly twice a week, and 4 gm. of paraaminosalicylic acid had been given orally, starting on April 3, and was continued through the present period of treatment. An incision and drainage of the tuberculous abscess on the left side was done on May 8. Streptokinase, 18,750 units, and 6,250 units of streptodornase were applied topically to the wound on May 10 and May 11. The wound was healed by May 23 and did not require secondary closure. The patient was transferred to the medical service for further treatment of his pulmonary tuberculosis.

Case 5.—A 15-year-old Negro was admitted to the Baltimore City Hospital on Oct. 4, 1950, with tuberculosis of the vertebral column present for about 10 years. He was emaciated, underdeveloped, and paraplegic. A pronounced kyphosis and a sinus with copious purulent drainage were present over the midthoracic portion of the vertebral column. Roentgenograms showed destruction of the 4th, 5th, 8th, 9th, and 10th thoracic vertebras and the lower four right ribs. Streptomycin, 1 gm., was given intramuscularly every three days from Oct. 10 to Oct. 24. The amount was changed to 0.25 gm. every three hours from Oct. 24 to Oct. 29, when it was shifted to the original dosage. Paraaminosalicylic acid, 3 gm., was given orally three times a day, starting on Oct. 24, and is still being given. Aqueous crystalline penicillin G, 50,000 units, was given intramuscularly every three hours from Oct. 24 through Nov. 2. The four involved ribs were removed, and a large paravertebral abscess was drained on Oct. 23. The patient was put into a body cast. He improved considerably during the next few months and gained weight. The paraplegia became less severe. Drainage from the wound, which had an unhealthy look, with pale, edematous granulation tissue, persisted. It was felt that treatment with streptokinase and streptodornase might aid in obliterating the residual soft tissue cavity and that a fusion of the vertebral column might then be undertaken safely. Streptokinase, 50,000 units, and 25,000 units of streptodornase were inserted through a catheter into the wound twice a day, starting on Jan. 28, 1951. Digestion was allowed to proceed for four hours, and then air vent suction was provided to remove the products of disintegration until the time for the second instillation, when the cycle was repeated. Therapy was continued until Feb. 21, when the catheters were withdrawn. The wound responded well to treatment. The abscess cavity shrank from about 150 cc. to almost nothing. With healing of the wound and during treatment with enzymes, spinal fusion from the seventh thoracic through the first lumbar vertebra was done on Feb. 13. Further fusion was contemplated at a later date. The operative wound and the wound made to remove the ribs and drain the abscess healed. The paraplegia has disappeared. The patient is still in the hospital for further therapy.

Case 6.—A 30-year-old Negress was admitted to the Baltimore City Hospital on March 7, 1951, for back pain of about eight years' duration but which had been more pronounced during the past six months. A tuberculous abscess was found in the right gluteal region. Incision and drainage was done on March 14. The right sacroiliac joint was determined to be the rimary source of infection. The operative wound, which was losed without drainage, healed by primary intention. Streptomycin, 1 gm., and aqueous crystalline penicillin G, 300,000 nits, were given intramuscularly twice a day from March 14 o April 2. Streptomycin, 1 gm., was given intramuscularly very three days from April 2 and is still being given. An xtra-articular fusion of the right sacroiliac joint was done on March 29. The wound did not heal. Purulent material was oted in the wound on April 4 and was still present at the time herapy with streptokinase and streptodornase was started on April 24. The wound at this time was about 4 cm. in length nd 4 cm. in depth, extending to the site of fusion. A polythene ube was placed into the wound and covered with a nylon pack. Streptokinase, 16,600 units, and streptodornase, 8,300 units, were injected into the tube every four hours until May 9, when tube and pack were removed. The wound had decreased ably in size and closed on May 21.

7.—A 17-year-old Negro was admitted to the Balti- City Hospital on April 11, 1951, with a history of having tuberculous cervical lymphadenitis for about one year. An ncision and drainage of a tuberculous abscess had been done on June 7, 1950. An excision of a mass of tuberculous lymph nodes was done on July 7. A secondary closure and application of a split skin graft was done on Aug.14. The wound healed, and the patient did not have further difficulty until April 2, when a sinus just below the left angle of the mandible was noted. Streptomycin, 1 gm., was given every three days from April 13 to April 23, when the dose was increased to 1 gm. a day until May 11. Three grams of paraaminosalicylic acid was given orally three times a day from May 8 through May 13. The wound did not show any signs of healing with streptomycin and paraaminosalicylic acid treatment. An incision and drainage of the tract was done on April 23. A polythene tube was placed into the wound and was covered with a nylon pack. Streptokinase, 16,600 units, and streptodornase, 8,300 units, were injected through the catheter every four hours from April 24 through May 1. The wound improved considerably during this period. The catheter and pack were removed on May 1. A mixture of streptokinase and streptodornase in lubafax® with aureomycin was applied to the wound twice daily from May 2 through May 7. A secondary closure of the wound was done on May 8. A section of a small polythene tube was placed under the closure through a small stab wound. Streptokinase, 25,000 units, and 12,500 units of streptodornase were injected through the catheter twice a day on May 9 and May 10. The catheter was removed on May 11. Healing was by primary intention. The patient was discharged from the hospital on May 15.

## COMMENT

The use of streptokinase and streptodornase will permit the surgeon greater security in the drainage of tuberculous abscesses. Although it would seem to us that such accumulations of pus delay healing, many surgeons are unwilling to drain such abscesses for reasonable fear of secondary infection and consequent deterioration of the patient. The results obtained so far indicate that such fear is not justified. The removal of thick purulent material from the walls of the cavity accomplished by the use of the enzymes will allow greater penetration and more effective action of antibiotics given either systemically or locally.

Since streptokinase and streptodornase are compounds having a surface action only, the best results are achieved when exteriorization is as complete as possible. The surface action of the compounds is a relative disadvantage in the treatment of infections of bone, where penetration of the dense matrix is poor. The use of the compounds is still indicated, but care must be exercised to place the compounds in the area of infection, and the duration of the treatment is longer. To date, 19 patients with tuberculous infections, of which 14 infections were severe, have been treated by these methods. These include 4 patients with tuberculous empyema, 5 patients with tuberculous lymphadenitis, and 10 patients with some manifestation of tuberculosis of the bones, joints, or tendons. In 16 of these, the tuberculous infection has been controlled, and all wounds and sinuses are healed. The remaining three persons had advanced, progressive tuberculosis. Local improvement was obtained in each of these, but the systemic progress of the tuberculosis continued with fatal result.

Care must be taken when streptokinase and streptodornase are used in the treatment of tuberculous empyema in the presence of a bronchopleural fistula. Thick pus in the empyema space is rapidly converted into thin material, which lends itself to ready aspiration or drainage. The enzymes, together with aspiration or drainage, will prepare the empyema cavity for successful subsequent thoracoplasty. The thick visceral pleura, which becomes well organized and relatively avascular, does not lend itself to chemical solution. Since thick pus in the empyema space is made thin by streptokinase and streptodornase, spread of the infection may easily occur in the presence of a bronchopleural fistula. This complication has not been seen in two instances, but enzymatic therapy in the presence of fistula must be undertaken with caution and followed as rapidly as possible by surgical collapse if an unyielding roof of bone is present. Experience with two instances demonstrated that fibrinous adhesions may be dissolved but that lysis of organized adhesions or adhesions containing collagen will not result from therapy.

### SUMMARY

The rapidity of healing that is afforded by surgical drainage of tuberculous abscesses when it is combined with the use of streptokinase and streptodornase offers a more satisfactory way of treating these lesions than older conservative methods. Streptokinase and streptodornase must be used purely as adjuncts, however, to other therapeutic measures. The compounds have no effect upon living tissue and the use of these enzymes facilitates the formation of healthy granulation tissue. If spontaneous closure of wounds does not occur rapidly, secondary closure may then be carried out.

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# TREATMENT OF ULCERATIVE COLITIS WITH CORTICOTROPIN (ACTH) AND CORTISONE

## A TWO YEAR FOLLOW-UP

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The purpose of this communication is to report our experiences over a period of 2 years with the use of corticotropin (ACTH) and cortisone in a selected group of patients with ulcerative colitis. Studies were directed to determine the effectiveness of hormone therapy in inducing a remission in the disease. The possibility of sustaining the remission by long-term maintenance therapy and repeated courses of hormone treatment was investigated. Corticotropin therapy was begun in the first patient of this series (O. D.) on Oct. 2, 1949.

The use of corticotropin in ulcerative colitis is predicated on its effectiveness in reducing the extensive inflammatory tissue reaction that characterizes the disease and in diminishing the systemic and toxic manifestations of infection. Hormonal inhibition of fibroblastic proliferation with the possible prevention of fibrosis and stricture formation were additional indications. The dramatic increase in appetite and sense of well-being, which often characterize the administration of corticotropin and cortisone, might be anticipated to be of incalculable value in the treatment of these debilitated, anorexic malnourished patients.

Remissions have been induced by hormone therapy in a wide variety of systemic diseases involving mesenchymal tissue or in which an antigen-antibody type of reaction may be implicated. The occurrence of polyarthritis and the extensive mesenchymal involvement of the colon observed in this disease offered further incentive to this study.

Since the fecal lysozyme titer appears to reflect the activity of the ulcerative process,[1] the effect of hormone therapy on the fecal lysozyme level was integrated with the clinical course of the disease.

### METHOD OF STUDY AND TREATMENT

The psychological effects of a new form of treatment were minimized whenever possible. The patients were given parenteral placebos in many instances before hormone therapy was begun and were not informed of the change in medication. A moderately unrestricted, bland diet was maintained unaltered through the control and treatment periods. All medication except the use of phenobarbital sodium was discontinued during the period of study.

In view of the spontaneous remissions that may occur in this disease, corticotropin and cortisone therapy was restricted to patients with severe intractable ulcerative colitis. Eight patients were selected who were almost completely incapacitated and had not responded to an adequate control period (one to four months) of good medical management, which included the use of antibiotics, detergents, prolonged bed rest, diet, and blood transfusions, with psychotherapy and the usual supportive treatment.

Six of the eight patients were acutely ill with intractable bloody diarrhea (8 to 15 evacuations daily), abdominal pain, tenesmus, anorexia, profound weight loss, fever, leukocytosis, and anemia. Two patients were chronically disabled by frequent uncontrollable, blood-tinged evacuations, moderate weight loss, abdominal distress, and anorexia. The sigmoidoscopic examination demonstrated a diffusely ulcerated, freely bleeding, friable mucosa, and the roentgen studies revealed extensive involvement of the colon and rectum.

Laboratory studies included determinations of the blood eosinophil count,[2] urinary 17-ketosteroids, as well as the sedimentation rate, serum proteins, fasting blood sugar, blood carbon dioxide, serum chlorides, hematocrit, hemoglobin, and white cell count.

The consistency, appearance, and number of stools were recorded daily, and the stools were analyzed for occult blood. The appearance of the colon was studied by repeated proctosigmoidoscopic and roentgen examinations. The fecal lysozyme titer [3] was determined at frequent intervals prior to, during, and after corticotropin therapy.

Objective criteria for remission consisted of control of diarrhea, decrease in fecal blood, fall in lysozyme titer, disappear-

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From the Medical Clinic, Peter Bent Brigham Hospital; the Department of Medicine and Biophysical Laboratory, Harvard Medical School; and the West Roxbury Veterans Administration Hospital.

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ance of fever, decrease in sedimentation rate, increase in body weight, and definite sigmoidoscopic evidence of healing.

Corticotropin was administered in doses of 20 to 40 mg. intramuscularly at six-hour intervals for periods of three to eight weeks, depending on the requirements and clinical response of each patient. At the end of treatment, the dose was reduced gradually over a period of five to seven days. Antibiotics such as penicillin, in doses of 300,000 to 400,000 units daily, were administered to some patients for four to five days during this period before the hormone therapy was discontinued. All patients were maintained on a limited salt and fluid intake and were given 0.9 gm. of potassium chloride three times daily. During the past year corticotropin was administered intravenously over an 8-hour period daily as a solution containing 20 mg. in 500 cc. of dextrose in water.

Cortisone was administered orally in one or more courses in doses of 100 to 125 mg. twice daily for 10 to 21 days, with a gradual reduction in dosage for five to seven days before the treatment was terminated. One patient received a total of 10.85 gm. of cortisone over a period of 77 days, as a form of long-term maintenance therapy (table 1), which was followed by 56 days of corticotropin therapy.

Table 1.—*Corticotropin and Cortisone Therapy in Ulcerative Colitis*

| Patient | Courses of Treatment | Dosage, Mg./Day |  | Days of Treatment | Duration of Symptoms During Treatment |  | Interval from Initial Therapy to Proctoscopic Improvement (Days) | Results |
|---|---|---|---|---|---|---|---|---|
|  |  | Corticotropin | Cortisone |  | Diarrhea (Days) | Gross Blood in Stools (Days) |  |  |
| E. G. | 1 | 80 | ... | 18 | 6 | 6 | 22 | Excellent |
|  | 2 | .. | 200 | 14 | 21 | 21 | None | Poor |
|  |  | .. | 50 | 7 | .. | .. | .. | ........ |
|  |  | 120 | ... | 14 | 2 | 33 (Trace) | 30 | Fair |
|  |  | 40 | ... | 19 | .. |  | .. | ........ |
|  | 3 | .. | 250 | 21 | .. | .. | .. | ........ |
|  |  | .. | 150 | 7 | 7 | 40 | .. | ........ |
|  |  | .. | 100 | 7 | .. | (Occasional trace) | .. | ........ |
|  |  | .. | 75 | 14 | .. | .. | 56 | Good |
|  |  | .. | 50 | 7 | .. | .. | .. | ........ |
|  |  | .. | 100 | 14 | .. | .. | .. | ........ |
|  |  | .. | 150 | 7 | .. | .. | .. | ........ |
|  |  | 100 | ... | 21 | .. | .. | .. | ........ |
|  |  | 75 | ... | 7 | .. | .. | .. | ........ |
|  |  | 50 | ... | 7 | .. | .. | .. | Excellent |
|  |  | 25 | ... | 7 | .. | .. | .. | ........ |
|  |  | .. | 75 | 14 | .. | .. | .. | ........ |
| O. D. | 1 | 100 | ... | 24 | 7-10 | 7-10 | 21 | Excellent |
|  |  | 40 | ... | 18 | .. | .. | .. | ........ |
| B. F. | 1 | 100 | ... | 21 | 12-14 | 14 | 17 | Excellent |
|  | 2 | .. | 250 | 10 | 10 | 8-10 | 30 | Good |
|  | 3 | .. | 200 | 14 | 5 | 8 | 15 | Good |
| A. M. | 1 | 80 | ... | 24 | 10-12 | 12-14 | 21 | Fair |
|  | 2 | 100 | ... | 16 | 7-10 | 7-10 | 25 | Good |
| O. H. | 1 | 80 | ... | 11 | 11 | 11 | .. | Fair |
|  |  | 160 | ... | 22 | 9 | 12 | .. | ........ |
|  |  | 80 | ... | 7 | .. | .. | 30 | Good |
|  |  | 40 | ... | 7 | .. | .. | .. | ........ |
| L. B. | 1 | 100 | ... | 15 | .. | .. | .. | ........ |
|  |  | .. | 200 | 14 | 29 | 29 | No change | Poor |
| H. I. | 1 | 160 | ... | 21 | 10 | 8 | .. | Good |
|  | 2 | .. | 150 | 14 | .. | .. | .. | ........ |
| H. E. N. | 1 | 120 | ... | 20 | 10 | 6 | .. | Good |

## RESULTS

*Symptomatic Improvement.*—A definite and occasionally dramatic remission was observed in five of the six patients with ulcerative colitis treated with corticotropin or cortisone during the acute phase of the disease. A similarly satisfactory remission occurred in the two patients with intractable diarrhea in the chronic phase. Unrelenting diarrhea, which had persisted for many months in spite of previous therapy, decreased significantly within the first two weeks of treatment and was usually brought under complete control within two to three weeks if the dosage of corticotropin or cortisone was adequate (table 1). There was an accompanying diminution or disappearance of blood in the stools, with marked relief of abdominal pain and tenesmus. One patient (L. B.) failed to respond to treatment.

The characteristic euphoria and increase in appetite were noted in the successfully treated patients within the first week of therapy. These symptoms were associated with a prompt disappearance of the fever and a fall in the sedimentation rate and fecal lysozyme titer.

The initial response to hormone therapy was considered excellent in three patients, good in two, fair in two, and poor in one patient, who demonstrated no therapeutic effect.

The prompt effect of corticotropin therapy in inducing a symptomatic remission is demonstrated by patient B. B., a 41-year-old woman who had been semi-invalided for seven years with intermittent diarrhea, anemia, fever, and weight loss. Four months prior to admission, a large draining perianal fistula developed, associated with persistent diarrhea of 6 to 12 bloody mucoid evacuations daily, crampy abdominal pain, fever, chills, anorexia, and a weight loss of 16 lb. (7.3 kg.). Within one week of corticotropin therapy the diarrhea subsided, so that there were only two to four semiformed evacuations daily, and the patient experienced a sense of well-being and a remarkable increase in appetite. Two weeks after therapy was instituted, the nocturnal diarrhea and abdominal distress disappeared, and the stools became formed and were free of gross blood. The temperature, which had varied from 99 to 102 F daily, fell to normal within two days of treatment, and the sedimentation rate fell from 49 mm. per hour to 10 mm. within one week after the therapy was begun (fig. 1, table 1).

The perianal fistula decreased rapidly from 10 mm. in diameter to 6 mm. within three weeks of treatment. The drainage from one fistula diminished considerably, and the fistula regressed further to 2 mm. in diameter at the end of six weeks.

A similarly dramatic effect was observed in patient O. D., who complained of fecal incontinence for four months, with 10 to 18 blood-stained watery evacuations daily associated with marked tenesmus, a low-grade fever, and a 25 lb. (11 kg.) weight loss, in spite of prolonged hospitalization and intensive medical therapy, including the use of detergents and antibiotics and psychotherapy. Within one week of corticotropin therapy, the number of evacuations decreased to five and became semiformed. By the end of the second week the patient was passing one to three formed stools daily, which were free of occult blood. This was the first time in four months that the diarrhea had been controlled (table 1, figure 2). The tenesmus and abdominal pain diminished greatly within the first week and disappeared by the end of the second week of treatment. The characteristic euphoria and increased appetite were noted soon after therapy was instituted, and the patient gained 10 lb. (4.5 kg.) within one month.

Four additional patients with previously intractable diarrhea of four to six months' duration responded satisfactorily within 6 to 14 days of corticotropin administration (E. G., O. H., H. I., and H. E. N., table 1). A definite but less dramatic improvement was observed in patient A. M. (table 1), with disappearance in the nocturnal diarrhea within two weeks of treatment in spite of a rectal stricture, arthralgia of the knees and elbows, fever, and a 30 lb. (13.5 kg.) weight loss over a period of five months. No clinical response to corticotropin or cortisone therapy was observed in one patient during an acute severe exacerbation of chronic ulcerative colitis of 23 years' duration, extensive fibrosis and cicatrization of the colon, multiple strictures, and perianal and perineal fistulas (L. B., table 1).

In most patients the gross and occult blood in the stools diminished significantly within the first two weeks of treatment, during which time the diarrhea subsided (table 1). The stools became free of occult blood within 10 days of corticotropin therapy in two patients with ulcerative colitis in whom gross blood had been observed consistently for three to four months (O. D. and E. G., table 1). Occult blood in the stools persisted, however, for two to four months after treatment in several patients, (E. G., B. F., and O. H., table 1) and presented a serious problem in one patient (A. M.), in whom polyps in the transverse colon were demonstrable by x-ray. The bleeding appeared to be aggravated by hormone therapy during a severe relapse in one instance. This patient required multiple blood transfusions and responded satisfactorily to a subsequent prolonged course of corticotropin and cortisone therapy supplemented by antibiotics (E. G., table 1).

The profound and intractable anorexia and persistent weight loss that characterizes patients with severe ulcerative colitis presents a most difficult challenge in their management. Corticotropin or cortisone given in adequate dosage produced a consistent and impressive increase in the appetite and sense of well-being, which frequently heralded the remission in these malnourished, dehydrated patients. Although all the patients studied had lost weight consistently prior to treatment, a definite gain in weight could be demonstrated usually within the first three weeks of therapy. This weight gain continued for many weeks and months thereafter in all the patients who responded satisfactorily. Although some of the initial increase in weight was probably caused by retention of fluid, the long-term gain of weight, varying from 10 to 40 lb. (4.5 to 18.1 kg.), appeared to be initiated by the hormone treatment.

The increase in appetite was accompanied by disappearance of fever and a fall in the sedimentation rate usually within a few days of therapy. Increase in the hematocrit, plasma proteins, and body weight were observed later in the course of treatment.

*Sigmoidoscopic Evidence of Healing.*—Definite evidence of healing on sigmoidoscopic examination usually did not appear until after three weeks of hormone treatment. A consistent lag was observed between the clinical and sigmoidoscopic reflection of improvement in the disease.

Significant evidence of remission was observed on sigmoidoscopic examination in four patients. Pinpoint bleeding and diffuse ulceration were, in some instances, spectacularly decreased, and the mucosa appeared distinctly less friable, with markedly diminished granularity. In one patient (E. G.) the mucosa appeared essentially normal except for evidence of fine granularity after three weeks of treatment. This patient had a severe relapse, however, two months later. In no instance did the mucosa revert to normal within the first three to four weeks of treatment.

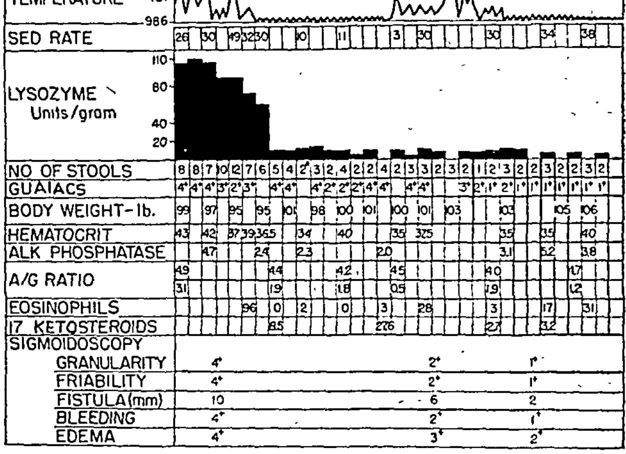

Fig. 1.—Effect of corticotropin on ulcerative colitis in patient B. F. (Asterisk signifies appearance of formed stools on day noted and thereafter.)

Patient O. D. demonstrated marked improvement and evidence of healing after three weeks of treatment, although minor residual granularity and bleeding were still present. A small single inflammatory pseudopolyp, seen on two occasions in the rectal mucosa, disappeared within three weeks. Six months later, the mucosa was indistinguishable from normal. This patient has remained in remission for 28 months (fig. 2, table 1).

There was no improvement in the appearance of the rectal mucous membrane of patient L. B., with multiple strictures, polyposis, and fistulas, in spite of treatment with corticotropin and cortisone (table 1). A rectal stricture noted during the examination of another patient (A. M.) persisted after treatment, although it appeared less edematous. The amount of hormone necessary to induce evidence of healing observable on proctoscopic examination varies considerably. No evidence of healing was observed in patient E. G., during a severe relapse, while he had received 3,150 mg. of cortisone over a period of 21 days and 1,680 mg. of corticotropin during an additional 14-day period (table 1).

*Roentgenologic Appearance.*—An increase in the caliber and length of the colon, increase in haustral markings, and a more normal mucosal pattern were demonstrated in three patients (B. F., A. M., and O. D.) two months after treatment was instituted. There was no significant change in the roentgenographic appearance of the colon in the remaining patients with ulcerative colitis except for some diminution of spasm, motility and irritability. In no instance did the roentgenographic appearance return completely to normal.

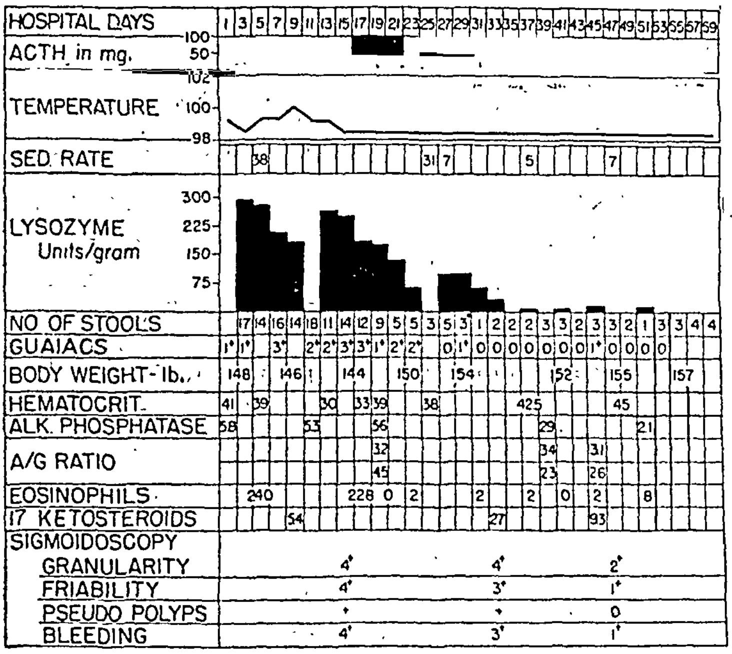

Fig. 2.—Effect of corticotropin on ulcerative colitis in patient O. D. (Asterisk signifies appearance of formed stools on day noted and thereafter.)

*crease in Fecal Lysozyme.*—Lysozyme is a muco-enzyme present in the colonic mucosa and other ssues in the body.[4] The fecal lysozyme titer is significantly elevated during the acute phase of ulcerative colitis and falls to low values approaching the normal range during the chronic inactive or remission phase. The mean lysozyme titer of 24 patients with active ulcerative colitis was 100 units per gram. In a series of 29 patients in the chronic inactive or remission phase, the mean lysozyme titer was 11 units per gram, compared with 5 units observed in 30 normal subjects (table 2). Studies in our laboratory indicated that the lysozyme titer paralleled the course of the disease and reflected its activity, decreasing with remissions and increasing with exacerbations.[5]

A marked fall in the fecal lysozyme titer occurred within 4 to 17 days of hormone treatment and coincided with the clinical improvement of the patient. This decrease in fecal lysozyme titer to the inactive remission level following corticotropin therapy was observed uniformly in all patients responding satisfactorily to treatment. The mean lysozyme titer prior to hormone therapy was 133 units per gram, falling to 27 units per gram during the course of corticotropin administration, with subsequent levels of 16 units per gram at the end of treatment and during the consequent remission in the disease (table 2).

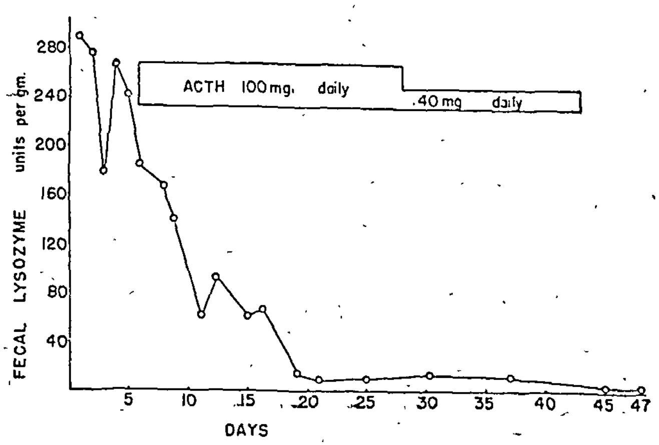

Fig. 3.—Effect of corticotropin on fecal lysozyme in patient O. D.

The decrease in fecal lysozyme titer paralleling the clinical course of the disease during corticotropin therapy is demonstrated in patient O. D. (fig. 2 and 3), in whom the titer fell from the pretreatment level of 291 units per gram to the chronic inactive level of 7 units on the 20th day of treatment, coincident with the remission. The lysozyme titer remained below 5 units for the subsequent 20 months.

The rapid clinical improvement in patient B. F. during corticotropin therapy was also reflected by a precipitous fall in the fecal lysozyme titer from a mean level of 97 units per gram before treatment to 9 units within four days of hormone therapy (fig. 1).

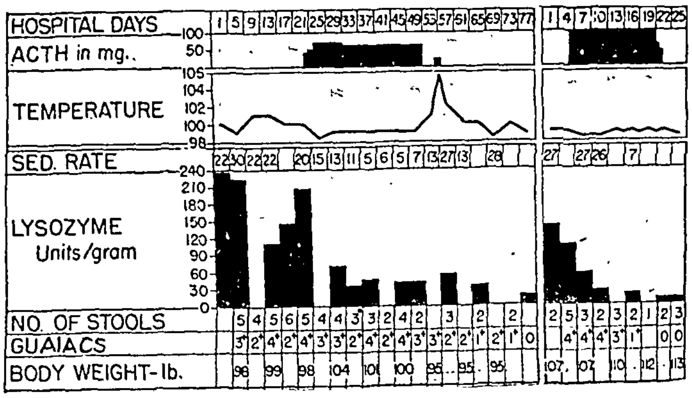

Fig. 4.—Effect of corticotropin on ulcerative colitis and the fecal lysozyme titer in patient A. M., showing a fall and rise in lysozyme titer paralleling the clinical remission and relapse of the disease. (An interval of 18 weeks elapsed between the hospital admissions. Asterisk denotes appearance of formed stools on day noted and thereafter.)

The relationship between the lysozyme titer and the activity of the disease was seen in patient A. M., who responded to corticotropin therapy but had a relapse 18 weeks later. The remission and subsequent relapse of the disease were paralleled by a fall and a secondary rise in the lysozyme titers. The fecal lysozyme fell from 220 units during the acute phase before treatment to 13 units during the remission. The lysozyme titer rose again to 110 units with the recrudescence of the disease and fell to 10 units after the second course of corticotropin and the resulting second remission, 14 days later (fig. 4).

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[4] Meyer, K.; Gellhorn, A.; Prudden, J. F.; Lehman, W. L., and Steinberg, A.: Lysozyme Activity in Ulcerative Alimentary Disease: II. Lysozyme Activity in Chronic Ulcerative Colitis, Am. J. Med. 5: 496, 1948.

[5] Gray, Reifenstein, Connolly, Spiro, and Young.[1a] Gray, S. J.; Reifenstein, R. W.; Benson, J. A., Jr., and Young, J. C. G.: Treatment of Ulcerative Colitis and Regional Enteritis with ACTH: Significance of Fecal Lysozyme, A. M. A. Arch. Int. Med. 87: 646 (May) 1951.

With extensive cicatrization of the bowel, no therapeutic response may be anticipated. This was demonstrated in patient L. B., with extensive fibrosis of the colon, multiple rectal strictures, and perianal fistulas. This patient failed to demonstrate any significant effect of corticotropin or cortisone therapy on the fecal lysozyme titer or the clinical course of the disease.

## LONG-TERM RESULTS

*Relapses and Remissions.*—Three patients have remained in good remission for 14 to 28 months following discontinuation of hormone therapy. A fourth patient, whose treatment was completed 10 months ago, is still in remission. Definite relapses occurred, however, two to nine months after treatment in the remaining three patients.

Patient O. D. had received an initial course of treatment consisting of 3,120 mg. of corticotropin over a period of 42 days (fig. 2, tables 1 and 3). He experienced an excellent clinical response and has remained in remission for 28 months without dietary restriction, works regularly, has one formed bowel movement daily, and has gained 45 lb. (20.4 kg.). Although x-ray studies reveal residual narrowing, shortening of the colon, and lack of haustration, the proctoscopic examination presents an essentially normal mucous membrane, with only mild residual granularity and thickening. This 46-year-old man had been completely incapacitated for seven months prior to treatment.

A 29-year-old lawyer, who was incapacitated for six months by bloody diarrhea (8 to 10 evacuations daily), which persisted in spite of adequate medical and psychiatric therapy, was treated with 5,240 mg. of corticotropin over a period of 47 days. He had a satisfactory remission, which has persisted for 14 months. He is able to work every day, has gained 25 lb. (11.3 kg.) in spite or two or three formed and semiformed small evacuations daily. Proctoscopically the mucous membrane presents the picture of healed ulcerative colitis. Insufficient time has elapsed to evaluate the permanency of this remission (tables 1 and 3).

A similarly satisfactory remission has been maintained by patient H. I. for 15 months after a 21-day course of corticotropin therapy (160 mg. daily) followed by 14 days of cortisone therapy (150 mg. daily). This 33-year-old man regularly works, has gained 30 lb. (13.6 kg.), and has two or three semiformed or formed evacuations daily. The mucosa appears healed on sigmoidoscopic examination. This patient had been unable to work for six months because of persistent diarrhea and weight loss (tables 1 and 3).

Ten months have elapsed since patient H. E. N. was treated (reported in detail under complications). There has been a 22 lb. (10 kg.) weight gain and the patient passes one or two formed stools daily.

Patient A. M., who had responded satisfactorily to three weeks of treatment with corticotropin (80 mg. daily), had a recurrence of diarrhea, with gross blood in the evacuation four months later. This 50-year-old woman had been bedridden for five months prior to hormone therapy because of uncontrollable diarrhea, tenesmus, 30 lb. (13.6 kg.) weight loss, severe anemia, and arthritis. The patient was given a second course of corticotropin therapy (100 mg. daily) for 16 days and responded again to treatment. This patient has remained in remission for 12 months since the last course of cortisone therapy without significant relapse and has gained 35 lb. (15.9 kg.). Occult blood in the stools and anemia have persisted, however, presumably because of polyps in the transverse colon demonstrated by x-ray. The patient has four or five formed or semiformed evacuations daily, and her weight gain has been maintained. She carries on her regular activities without significant limitation. Proctoscopic examination reveals a rectal stricture, with some thickening of the mucous membrane and fine granularity but no friability or gross bleeding. Appetite and sense of well-being remain excellent (tables 1 and 3).

Table 2.—*Fecal Lysozyme in Ulcerative Colitis Demonstrating the Effect of Corticotropin Therapy in Reducing the Lysozyme Titer to Inactive or Remission Levels*

| | No. of Cases | Mean Lysozyme Titer (Units/Gm.) |
|---|---|---|
| Normal | 30 | 5 |
| Ulcerative colitis * | | |
| Active | 24 | 100 |
| Inactive or healed | 29 | 11 |
| Ulcerative colitis † | | |
| Before corticotropin therapy | 7 | 133 |
| After corticotropin therapy | 7 | 16 |

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* Previously reported; no hormone therapy was administered.[1]
† Present series of patients.

Table 3.—*Remissions and Relapses Following Hormone Therapy*

| Patient | Courses of Treatment | Hormone | Days of Hormone Therapy | Duration of Remission After Therapy | Weight Gain (Lb.) | Relapse |
|---|---|---|---|---|---|---|
| E. G. | 1 | Corticotropin | 18 | 2 mo. | 10 | Severe |
| | 2 | Cortisone | 54 | 2 weeks | 0 | Severe |
| | 3 | Corticotropin<br>Cortisone<br>Corticotropin | 133 | 3 mo. | 20 | None |
| O. D. | 1 | Corticotropin | 42 | 28 mo. | 45 | None |
| B. F. | 1 | Corticotropin | 21 | 9 mo. | 30 | Mild |
| | 2 | Cortisone | 10 | 4 mo. | 5 | Mild |
| | 3 | Cortisone | 14 | 8 mo. | .. | ....... |
| A. M. | 1 | Corticotropin | 24 | 4 mo. | 25 | Moderate |
| | 2 | Corticotropin | 16 | 12 mo. | 10 | ....... |
| O. H. | 1 | Corticotropin | 47 | 14 mo. | 25 | None |
| L. B. | 1 | Corticotropin | 29 | None | 0 | Ileostomy |
| H. I. | 1 | Corticotropin | 21 | 15 mo. | 30 | None |
| | 2 | Cortisone | 14 | ...... | .. | ....... |
| H. E. N. | 1 | Corticotropin | 20 | 10 mo. | 22 | None |

A definite relapse occurred in patient (B. F.) nine months after corticotropin therapy. Although transient episodes of diarrhea followed dietary indiscretion during the remission, the patient had gained 30 lb. (13.6 kg.) and passed two formed stools daily without blood. Her appetite had remained excellent, and she was essentially asymptomatic and able to carry on her regular duties. Sigmoidoscopy revealed a thickened, healed, finely granular mucous membrane and a small persistent fistula. The relapse was characterized by severe bloody diarrhea with urgency, temperature rises to 102 F, nausea and vomiting, and persistent anorexia. The patient was treated with 125 mg. of cortisone orally twice daily for 10 days and had a prompt remission within three days of cortisone administration, with a return of appetite and control of the diarrhea. Proctoscopic examination revealed healed ulcerative colitis in the remission phase.

A similar relapse associated with a 10 lb. (4.5 kg.) weight loss occurred four months later. A third course of cortisone, consisting of 100 mg. twice daily for 14 days, was administered. The diarrhea and fever subsided within five days, and the patient's appetite immediately improved. Since this last relapse the patient has been passing three formed stools daily and her appetite and sense of well-being continue to be excellent. Proctoscopic examination again revealed a healed inactive ulcerative colitis. The hematocrit is normal and the stools are free of occult blood (tables 1 and 3, fig. 1).

A very severe relapse characterized by diarrhea with massive hemorrhage, profound anorexia, and fever following prolonged physical exertion occurred two months after corticotropin treatment was discontinued in patient E. G., who had previously experienced an excellent and dramatic response to corticotropin therapy (tables 1 and 3). Treatment with cortisone, 200 mg. a day for 14 days, followed by 120 mg. of corticotropin daily for 14 days, resulted in some improvement. The patient was then maintained on 40 mg. of corticotropin daily for an additional period of 19 days. Two weeks after corticotropin therapy was discontinued, the patient experienced another severe relapse, which responded dramatically to cortisone therapy (125 mg. twice daily orally for three weeks, followed by smaller doses over a period of eight additional weeks).

## LONG-TERM MAINTENANCE THERAPY

The rationale for long-term maintenance therapy and repeated courses of hormone treatment is demonstrated by the following case of fulminating ulcerative colitis, characterized by repeated episodes of massive hemorrhage, intractable diarrhea, profound anorexia, and weight loss with high temperature and leukocytosis, which was sustained in partial remission by three courses of corticotropin and cortisone therapy over a period of 11 months (tables 1 and 3). This desperately ill patient received a total of 11,900 mg. of cortisone and 3,150 mg. of corticotropin in 133 consecutive days, to prevent a relapse during the third course of treatment.

Case 1.—E. G., a 17-year-old school boy, who was a long-distance runner, was admitted to the hospital on June 25, 1950, because of diarrhea, consisting of 10 to 12 watery, blood-tinged or grossly bloody stools per day of four months' duration. Diarrhea and blood loss were aggravated by strenuous exercise and stress associated with his racing activities and were accompanied with abdominal distress, tenesmus, and a 10 lb. (4.5 kg.) weight loss. Previous medical management did not appear to alter the severity of the diarrhea or the abdominal distress.

Physical examination disclosed no abnormalities except for evidence of weight loss and dehydration. The hematocrit was 43%, serum albumin 3.9 gm., and globulin 2.1 gm. per 100 cc., corrected sedimentation rate 21 mm. per hour, eosinophil 756 per cubic millimeter, and urinary 17-ketosteroid excretion 9.1 mg. per 24 hours. The stools contained gross blood and revealed no enteric pathogens on culture. The fecal lysozyme titer was 86 units per gram.

Proctoscopy showed a markedly friable, ulcerated, coarsely granular rectal mucosa, with pinpoint bleeding throughout. The patient was placed on a regular hospital diet for seven days, during which time the diarrhea and gross blood persisted.

Administration of corticotropin, 20 mg. every six hours, was begun on his seventh hospital day, and the patient was treated for 18 days, with a gradual diminution in the dose for the next three days. Within 24 hours his stool frequency diminished to two daily. Grossly visible blood disappeared on the sixth day of treatment, and the stools became formed for the first time in three months. On the 13th day of therapy his stools became guaiac negative. Corticotropin was the only medicament administered. It induced the usual eosinopenia (19 eosinophils per cubic millimeter) within three days and a urinary 17-ketosteroid increase to 20.9 mg. per 24 hours within seven days. The sedimentation rate fell to 12 mm. in one week, and the fecal lysozyme decreased to 4 units per gram within two days of corticotropin therapy.

The patient experienced pronounced euphoria and a ravenous appetite and gained 5 lb. (2.3 kg.) in two weeks. He was discharged on July 22 with one or two formed evacuations daily, free of occult blood. On the day of discharge the rectal and sigmoid mucosa was indistinguishable from normal.

After discharge, the patient did well except for occasional slight rectal bleeding after extensive exertion. His appetite remained good, and he continued to gain weight. In the middle of September, 1950, the patient began training again for long distance, cross country running. Three days later he noticed the onset of severe diarrhea and bleeding, with six or seven watery bowel movements daily, containing gross blood, and associated with severe anorexia, fatigue, and lower abdominal pain. On Oct. 3 he noticed an elevation in temperature to 102 F, and on Oct. 4 he was readmitted to the hospital.

On admission the patient weighed 94 lb. (42.6 kg.), appeared acutely ill, and had an elevation in temperature varying from 100 to 102 F. Physical examination revealed abdominal tenderness in both the right and the left lower abdominal quadrants. On proctoscopic examination, a diffusely granular, ulcerated, freely bleeding, very friable mucous membrane was observed. Free blood gushed from the mucosa and obscured the field at frequent intervals. Hematocrit was 34% and the sedimentation rate 33 mm. per hour. The white blood cell count was 18,600. The fecal lysozyme titer had risen to 88 units per gram.

Two hundred milligrams of cortisone was administered daily in divided doses for 14 days (Oct. 4 to 18), and then the dose was gradually tapered off to 25 mg. daily during the subsequent six days. During this period the patient continued to have a temperature elevation to 100 F daily, his anorexia and diarrhea persisted, and he continued to lose weight, so that on Oct. 17 his weight had decreased to 90 lb. (40.8 kg.), and the hematocrit continued to fall to 29% in spite of an adequate eosinophil response. Corticotropin therapy was begun on Oct. 18, the patient receiving 80 mg. daily in four divided doses for four days and 120 mg. a day for 10 days. Then the dose was tapered off to 40 mg. daily.

The characteristic sense of well-being, increased appetite, decrease in the number of stools, and prompt fall in temperature did not occur until the dose was increased to 120 mg. a day, after which a prompt remission occurred. After five days of the increased dose of corticotropin, the patient felt exceedingly well, remained afebrile, and had three formed and semiformed evacuations daily, all containing occult blood.

The patient continued to show improvement with corticotropin administration, regained the weight he had lost during the first part of his hospitalization, and was discharged on Nov. 5, weighing 95 lb. (43.1 kg.). The hematocrit on discharge was 34%, and the stool reactions were consistently positive for occult blood.

Proctoscopic examination on Nov. 6 revealed considerable improvement in the appearance of the mucosa. The lower 4 in. (10 cm.) of the rectal mucosa appeared almost normal. There was some fine granularity but no bleeding or friability. At the junction of the rectum and sigmoid, on the right lateral wall, the mucosa was hyperemic and very friable and bled profusely on trauma. This was localized to an area approximately 1 in. (2.5 cm.) in diameter. It was felt that the patient's improvement in general, however, had been excellent, in view of the fulminating course of the disease.

The patient continued to improve while receiving 40 mg. of corticotropin daily in divided doses. He had three or four semiformed evacuations daily without gross blood, and his hematocrit rose to 38%.

Corticotropin treatment was stopped on Nov. 21. The patient continued to do well until Dec. 5, at which time he began to have severe diarrhea, five or six watery bowel movements a day with profuse gross blood. In spite of three transfusions and chloramphenicol (chloromycetin®) therapy, the course continued downhill, and the hematocrit on Dec. 19 was 29%. He had almost complete anorexia, and his weight on Dec. 26 had fallen to 85 lb. (38.6 kg.). The fecal lysozyme titer was 110 units per gram. X-rays revealed extensive serration, loss of haustration, and narrowing of the entire colon and rectum.

The patient refused hospitalization, although complete anorexia persisted. On Dec. 26 oral administration of cortisone, 125 mg. every 12 hours, was begun along with potassium chloride (0.9 gm. three times daily), and the patient was given another blood transfusion. By Jan. 2 (one week later) he noted a definite increase in appetite and a decrease in diarrhea and blood loss. He continued to improve, and by Jan. 16 he was passing two to three semiformed stools daily without gross blood. His appetite had improved tremendously, and he had gained 12 lb. (5.4 kg.) in three weeks. The dose of cortisone was decreased to 75 mg. twice daily on Jan. 16 and 50 mg. twice daily on Jan. 23.

The patient continued to improve and gain weight. The dose of cortisone was decreased further to 75 mg. daily, on Jan. 30. The dose was reduced to 50 mg. daily on Feb. 13. Within four days the diarrhea recurred and the patient noticed loss of appetite again. The hematocrit, however, was 38 on February 20, and there was no marked change on proctoscopic examination. The dose of cortisone was increased to 100 mg. daily, and there was an immediate return of appetite and diminution of diarrhea within a week. On March 6 cortisone was increased to 150 mg. daily, because the patient had failed to gain weight, although he was asymptomatic.

Beginning March 13, since cortisone was no longer available, the patient received decreasing doses of cortisone, 150 mg. for two days, then 100 mg., and finally 50 mg. Cortisone therapy was discontinued on March 20. Simultaneously with the decrease in cortisone dosage, on March 13, corticotropin therapy was begun, 100 mg. daily in divided doses. This was maintained for three weeks and then gradually decreased weekly to 75, 50, and finally 25 mg. daily. As the corticotropin dose was diminished the patient was given an oral antibiotic gantrisin® (3,4-dimethyl-5-sulfanilamido-isoxazole) 1.0 gm. four times daily.

The patient continued to improve and gain weight. On April 24 he weighed 113 lb. (51.3 kg.), representing a gain of 28 lb. (12.7 kg.) in four months. He was passing one to two formed stools daily without gross blood, and the hematocrit was 38. The proctoscopic examination revealed a finely granular mucous membrane, with no free bleeding or friability, indicating a healing process.

*Comment.*—Without hormone therapy, ileostomy would probably have been inevitable in this patient, in view of the massive bleeding and the profound weight loss and anorexia. The remission induced and sustained by corticotropin and cortisone therapy constituted excellent preparation of this patient for this procedure had it been necessary. The most marked beneficial clinical effect was on the patient's appetite and diarrhea. As soon as the dose of cortisone was reduced to less than 75 mg. daily, he noted an immediate decrease in appetite and increase in the number of evacuations.

The striking relationship of the fecal lysozyme titers to remissions and exacerbations of the disease was demonstrated by the decrease from pretreatment levels of 86 units to 5 units within five days of corticotropin therapy, coinciding with the clinical improvement. The lysozyme titer remained normal for two months during the remission period, only to increase to 78 units per gram with the recurrence of bleeding and diarrhea.

The effect of hormones on bacterial and inflammatory processes may be of considerable importance in patients with ulcerative colitis, who commonly have extensive secondary infection in the wall of the colon. It is advisable to administer antibiotics to these patients in order to decrease the bacterial flora of the intestine, particularly during the end of treatment. This may be important in the presence of bleeding. The use of antibiotics in conjunction with hormones appeared to decrease the amount of blood loss.

In long-term maintenance therapy with corticotropin or cortisone, the dose was reduced gradually over a period of one week before discontinuance of treatment in order to prevent adrenal suppression. This is particularly important with cortisone therapy. It may be advisable to alternate courses of corticotropin and cortisone therapy for the same reason as was done in patients E. G. and B. F. (table 1).

The occurrence of gastric hemorrhage and the development, reactivation, or perforation of peptic ulcers during long-term maintenance hormone therapy have been reported by a number of investigators.[6] Since these complications probably result from an increase in gastric acidity and pepsin,[7] the use of antacids may be indicated in these instances. Peptic ulcer contraindicates long-term hormonal maintenance therapy.

## COMPLICATIONS

A temporary increase in the fasting blood sugar to 300 mg. per 100 cc. was observed in one patient (A. M.) within two weeks of corticotropin administration, with return to normal levels within 14 days of the discontinuation of the hormone therapy. No hyperglycemia was observed, moreover, during a subsequent course of corticotropin therapy, four months later. The effects of corticotropin and cortisone-like hormones on carbohydrate metabolism are usually temporary and do not constitute a danger except in patients with diabetes or diabetic tendency. The fasting blood sugar in this patient has remained normal for one year after treatment. This patient also had sterile subcutaneous abscesses and a virus pneumonia on discontinuation of corticotropin therapy. These complications responded satisfactorily to antibiotic and supportive therapy and did not appear to affect the colitis adversely.

Other complications were moderate hirsutism, acne, and pigmentation, which gradually disappeared after corticotropin treatment was terminated (B. F.).

Roundness of the face was observed in all patients during the second to third week of treatment. This varied in degree and diminished gradually after discontinuation of therapy.

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[6] Habif, D. V.; Hare, C. C., and Glaser, G. H.: Perforated Duodenal Ulcer Associated with Pituitary Adrenocorticotropic Hormone (ACTH) Therapy, J. A. M. A. **144**: 996 (Nov. 18) 1950. Kuzell, W. C., and Schaffarzick, R. W.: Cortisone Acetate in 32 Cases: Preliminary Clinical Observations, Stanford M. Bull. **8**: 125, 1950.

[7] Gray, S. J.: Discussion on Treatment of Ulcerative Colitis, in Mote, J. R.: Proceedings of the Second Clinical ACTH Conference, Vol. II, Philadelphia, The Blakiston Company, 1951, p. 504. Gray, S. J.; Benson, J. A., Jr., and Reifenstein, R. W.: Chronic Stress and Peptic Ulcer: I. Effect of Corticotropin (ACTH) and Cortisone upon Gastric Secretion, J. A. M. A. **147**: 1529 (Dec. 15) 1951.

Fever immediately following the termination of corticotropin therapy was observed in B. F. and probably represented an exaggerated withdrawal effect. The eosinophil count increased, and the urinary 17-ketosteroid excretion fell from 27.6 to 2.7 mg. in 24 hours during the febrile period (fig. 1). No flare-up of the colitis resulted, however, and the temperature returned to normal without additional treatment within two weeks.

In the following patient (H. E. N.) a subphrenic abscess developed during corticotropin therapy, without any localizing physical findings on abdominal examination. This complication, however, did not appear to affect the remission in the disease process, which remained quiescent throughout this episode.

Case 2.—H. E. N. (previously mentioned), a 50-year-old man, had had three attacks of ulcerative colitis over a period of 24 years. The last attack was in 1948, when the patient noted severe bloody diarrhea, consisting of 8 to 10 stools daily, tenesmus, meteorism, anorexia, and a 15 lb. (6.8 kg.) weight loss. He was treated with blood transfusions, bed rest, and antispasmodics, and the disease subsided gradually over a period of three months. The symptoms recurred 10 weeks prior to his present hospital admission, with the onset of explosive diarrhea (8 to 10 loose watery bowel movements daily), which did not respond to the usual medical management, including chloramphenicol therapy. He again complained of anorexia, nausea, cramping abdominal pain, tenesmus, and meteorism. Ileostomy was advised, in view of his intractable symptoms and chronic course.

On his admission to the hospital, the significant laboratory findings were a hematocrit of 34, white blood cell count of 9,300, and a sedimentation rate of 36. The blood chemistry findings were all normal. The stool guaiac was 4+ for blood, urinary 17-ketosteroids were 3.3 mg. in 24 hours, and the eosinophil count was 603 per cubic millimeter. The fecal lysozyme titer before hormone therapy was 104 units per gram. X-rays of the colon revealed pipe-like narrowing, with a fine ragged irregularity in outline of the entire colon and rectum. No normal haustrations could be seen.

The patient was observed for one week before corticotropin therapy was begun. On dietary management, sedation, and treatment with antispasmodics, he passed 9 to 10 watery, blood-stained stools daily. On Feb. 19, 1951, corticotropin therapy was begun, with 120 mg. daily in four divided doses, and 2.7 gm. of potassium chloride daily. All other medication was discontinued. The patient showed a good hormone response, with a fall in the eosinophils to 21 per cubic millimeter and an increase in 17-ketosteroids to 9.3 mg. in 24 hours. Within one week of hormone therapy, the patient noted a marked improvement in the diarrhea, so that by Feb. 25 he was passing one or two formed or semiformed stools daily. Within 10 days of treatment the abdominal distress completely disappeared, although occult blood in the stools still persisted.

On Feb. 28, after 10 days of corticotropin therapy (120 mg. daily), the patient began to complain of left costovertebral pain. Examination of the abdomen at this time revealed no evidence of spasm or tenderness. The white blood cell count, however, rose to 14,000, although there was no change in the sedimentation rate. The dose of corticotropin was decreased to 80 mg. daily on March 3 and discontinued, after a tapering-off process, on March 14. The patient received a total dose of 2.49 gm. over a period of 24 days.

An elevation of temperature to 100 F was observed for the first time on Feb. 3. The temperature returned to normal in three days. On March 14, the last day of corticotropin therapy, remittent fever to 102 F daily was observed and the patient continued to complain of left back pain. No effect was noted, however, on the colitis. The patient continued to pass two to three formed or semiformed stools daily, and the abdomen remained soft, without any evidence of localized spasm or tenderness. On March 17 the white cell count rose to 22,800. X-ray of the chest and abdomen revealed a large gas bubble and fluid level just below the left part of the diaphragm, presumably due to a large subphrenic abscess. Antibiotic therapy was instituted on March 14, and the abscess was drained surgically on March 30. The patient was discharged one week later, with an uneventful convalescence.

During this entire period the ulcerative colitis process appeared to remain in remission. Two weeks after surgery the patient was passing one or two formed stools daily, and in the subsequent two months he gained 22 lb. (10 kg.). There has been no evidence of a relapse since the institution of corticotropin therapy, in spite of this complication. The lysozyme content of the stools at the end of corticotropin therapy was 12 units per gram, which is characteristic of the remission phase of the disease.

*Comment.*—Since the tissue reaction to infection and inflammation is markedly altered by hormones, the possibility of infection as a complication in the management of ulcerative colitis with corticotropin or cortisone must be considered. Such complications were observed in A. M., in whom virus pneumonia and sterile subcutaneous abscesses developed at the end of her course of corticotropin therapy. The apparent perforation of a small ulcer in the colon with a resulting subphrenic abscess (H. E. N.) may also have resulted from decreased tissue resistance to infection and diminished localization of foci of infection by fibroblasts. There is a reasonable possibility that the increase in bleeding occasionally seen in patients with ulcerative colitis receiving corticotropin or cortisone may be also caused by a decrease in the inflammatory reaction on the part of the tissues to bacteria and bacterial toxins, with a subsequent increase in bleeding on an inflammatory basis (E. G.). The use of antibiotics in conjunction with hormone therapy in patients with ulcerative colitis is therefore indicated.

The absence of fever or abdominal rigidity in two cases in which acute peritonitis developed during treatment with corticotropin has been reported by Beck,[8] who emphasized the fact that acute perforation of an abdominal viscus with development of peritonitis may be obscured by treatment with corticotropin. Fever and leukocytosis developed in H. E. N., but there were no localizing signs whatever on abdominal examination, presumably because of hormonal inhibition of the reactivity of the tissue to inflammation. It is remarkable that the ulcerative colitis remained quiescent in spite of the perforation, development of abscess, and subsequent surgery.

## COMMENT

Hormone therapy appeared to induce a significant symptomatic remission in seven of eight patients with ulcerative colitis who were completely incapacitated by their disease and refractory to other forms of medical management. The remission in no sense constitutes a cure, since sigmoidoscopic examination indicated incomplete healing in some instances and relapses occurred in three patients two to nine months after treatment. Nevertheless, the control of diarrhea, decrease in fecal blood loss, and marked increase in appetite and sense of well-being, which are attendant on adequate hormone therapy, make it an exceedingly valuable adjunct in the treatment of ulcerative colitis.

Further evidence that hormone therapy induces a remission in the disease is the significant fall in fecal lysozyme titer within 4 to 17 days of corticotropin therapy to levels observed uniformly in patients in the chronic inactive or remission phase of the disease. Since the lysozyme titer is a measure of the activity of the disease process and parallels its clinical course, decreasing with remissions and increasing with exacerbations, the low levels observed after corticotropin therapy are significant. The fecal lysozyme titer, moreover, reflects the tissue reaction to injury or inflammation and is present in increased amounts in granulation tissue, pus,[9] and granulocytes.[10] The fall in fecal lysozyme during corticotropin therapy may reflect the inhibitory effect of corticotropin on the tissue's reaction to injury in which granulation tissue exudates and granulocytes play a part. It follows a similar pattern to the inhibition of other tissue reactions to injury, such as fibroblastic proliferation and production of tissue lymphocytes, gamma globulin, complement, and hyaluronidase.

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[8] Beck, J. C.; Browne, J. S. L.; Johnson, L. G.; Kennedy, B. J., and MacKenzie, D. W.: Occurrence of Peritonitis During ACTH Administration, Canad. M. A. J. 62: 423, 1950.

A reduction in the urinary 17-ketosteroid levels prior to corticotropin therapy was observed in six of the eight patients studied. A normal rise in the urinary 17-ketosteroid levels, however, occurred with corticotropin administration, indicating a reduced activity but a normally responsive gland. This depletion in adrenal activity probably reflects prolonged inanition, malnutrition, and chronic stress associated with extensive disease (table 4).

Patients with marked adrenal depletion and very low urinary 17-ketosteroid excretion may not respond to treatment with the usual dose of corticotropin or cortisone. Patient L. B., with extensive cicatrization of the colon, multiple rectal strictures, and perianal and perineal fistulas, had the lowest urinary 17-ketosteroid excretion of all the patients treated and exhibited no clinical response or decrease in fecal lysozyme titer in spite of a 15-day course of corticotropin therapy (100 mg. daily) and 14 days of cortisone therapy (150 mg. daily).

The clinical response to hormone therapy appears to depend on adequate dosage, which varies considerably in different patients depending on the activity and duration of the disease, the ease with which the adrenal can be stimulated, and the state of depletion of the adrenal gland with consequent decrease in endogenous output of adrenal hormones. Spontaneous remissions in the disease may depend in part on the release of endogenous hormones. During the past year the intravenous administration of 20 mg. of corticotropin daily over an 8-hour period in 500 cc. of dextrose in water has proved very satisfactory.

Patient O. H. showed no clinical effect whatever to 80 mg. of corticotropin daily, in spite of a good blood eosinophil and urinary 17-ketosteroid response. When the dose of corticotropin was increased to 160 mg. daily for 22 days, he experienced an excellent remission, which has persisted for six months. Patient E. G. exhibited no clinical response to treatment with 200 mg. of cortisone daily for 14 days but reacted favorably to further treatment with 120 mg. of corticotropin daily for 14 days, followed by 40 mg. daily for 19 additional days. In general, the patients who received the largest doses of hormone had the longest remissions. Patient O. D., for example, who received 3,120 mg. of corticotropin over a period of 42 days, has been in excellent remission for 28 months.

## SUMMARY AND CONCLUSIONS

1. The administration of corticotropin (ACTH) or cortisone to patients with extensive and intractable ulcerative colitis was accompanied by a significant and sometimes dramatic remission in seven of eight patients who were completely incapacitated by the disease and refractory to other forms of medical management.

2. A marked fall in the fecal lysozyme titer to levels observed in the inactive or remission phase of the disease accompanied the clinical remission and occurred within 4 to 17 days of corticotropin therapy in all patients responding to treatment.

3. Three patients have remained in remission for 14 to 28 months and have been restored to full activity.

4. Definite relapses occurred in three patients within two to nine months after hormone therapy. Repeated courses of corticotropin or cortisone induced satisfactory remissions in these patients.

5. No clinical response was observed in one patient with extensive cicatrization of the colon, multiple rectal strictures, and perineal and perianal fistulas.

TABLE 4.—*Urinary 17-Ketosteroid Excretion in Ulcerative Colitis*

| Patient | Sex | Control Period Mg./ 24 Hr. | Cortico-tropin Therapy Mg./ 24 Hr. | Patient | Sex | Control Period Mg./ 24 Hr. | Cortico-tropin Therapy Mg./ 24 Hr. |
|---|---|---|---|---|---|---|---|
| B. F. | F | 8.5 | 27.6 | E. G. | M | 9.1 | 20.9 |
| L. B. | F | 1.4 | 6.0 | H. I. | M | 3.3 | .... |
| A. M. | F | 4.4 | 15.0 | H. E. | M | 8.6 | 30.0 |
| | | 2.0 | 21.0 | O. H. | M | 6.0 | 19.7 |
| | | | | O. D. | M | 5.4 | 27.0 |
| | Normal | 10.0 | 15-25 | | Normal | 15.0 | 20-30 |

6. In one patient a perforation and subphrenic abscess developed during corticotropin therapy, without localizing spasm, rigidity, or tenderness on abdominal examination. The ulcerative colitis remained quiescent and in remission, however.

7. The efficacy of long-term maintenance therapy and repeated courses of treatment is discussed. One patient was sustained in remission with 11,900 mg. of cortisone and 3,150 mg. of corticotropin given over a period of 133 days.

8. Remissions induced by hormone therapy may prove of value in preparation of patients for surgery. The indications for use of antibiotics in conjunction with hormone therapy are discussed.

9. The dose requirement and duration of treatment must be individualized for each patient, depending on the clinical response, severity of the disease, and degree of adrenal depletion. The best long-term results were obtained in patients receiving a prolonged course of treatment.

10. Hormone therapy does not constitute a cure for ulcerative colitis but is a valuable adjunct in the treatment of this disease.

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[9] Prudden, J. F.; Lane, N., and Meyer, K.: Lysozyme Content of Granulation Tissue, Proc. Soc. Exper. Biol. & Med. 72: 38, 1949.

[10] Gottschall, G.: Personal communication to the author.

## CLINICAL NOTES

# CAUSES OF FAILURE IN TREATMENT OF SUBACUTE BACTERIAL ENDOCARDITIS

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*and*
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The recovery rate of patients with subacute bacterial endocarditis has increased progressively, but death from incomplete eradication of the infection or from complications of the disease still occurs in 20% to 30% of the patients.[1] It seems appropriate, therefore, that in every fatal case a careful scrutiny be made into the possible causes of failure, in the hope that the knowledge thus obtained may further improve the effectiveness of treatment.

The accompanying report deals with a patient who was admitted four times to the hospital for the treatment of the original episode of subacute bacterial endocarditis and, subsequently, for relapses following apparently adequate courses of treatment. An analysis was made to determine why this patient died despite the use of various antibiotics, singly and in combination, and despite large doses of those antibiotics, apparently adequate according to careful bacteriologic and sensitivity studies.

### REPORT OF A CASE

A 56-year-old man was admitted to the Mount Sinai Hospital in September, 1949, with complaints of weakness, fatigue, and exertional dyspnea for three months. Four weeks earlier the patient was digitalized because of dyspnea on exertion and swelling of the legs and feet. One week before hospitalization he suddenly experienced bilateral lumbar pain, with radiation to the left groin, followed by a rise in temperature to 102 F. Physical examination revealed a pale, thin man with moderate orthopnea. The temperature was 100.4 F, pulse rate 92 per minute, and respirations 28 per minute. The blood pressure was 134/72. There were two small petechiae in the conjunctiva of the left lower lid. Rales were audible at the bases of the lungs posteriorly. There was a harsh systolic murmur at the cardiac apex, transmitted to the axilla, and also a short harsh systolic murmur over the aortic area. The liver was enlarged to a level 5 cm. below the right costal margin and was slightly tender. The [illegible] was palpable 1 cm. below the left costal margin. There was tenderness over the costovertebral angles.

*Laboratory Examinations.*—The blood cell count showed 8.7 gm. hemoglobin per 100 cc., 3,800,000 erythrocytes, and 7,600 leukocytes per cubic millimeter, with a normal differential count. The erythrocyte sedimentation rate was 49 mm. per hour (Westergren). The urine was acid with a specific gravity between 1.006 and 1.019 (average, 1.014). On microscopic examination there were 5 to 10 erythrocytes, 2 to 3 leukocytes, and occasional hyaline and granular casts per high power field. X-ray examination of the chest revealed considerable enlargement of the heart to the left. The electrocardiogram showed only RS-T and T wave changes consistent with digitalis effects. An intravenous pyelogram showed the kidneys to be of normal size, the urinary tracts to be poorly visualized, and the spleen slightly enlarged. The blood urea nitrogen was 44 mg. per 100 cc. and the urea clearance 17.8 and 21.7 cc. per minute. The thymol turbidity and cephalin flocculation tests both gave a 3+ reaction.

Three successive cultures of the blood revealed the presence of Streptococcus viridans, which was moderately sensitive to penicillin and more so to aureomycin and streptomycin according to in vitro studies (table 1).

*Diagnosis.*—The patient apparently had a rheumatic mitral and possibly aortic valvular lesion complicated by subacute bacterial endocarditis, as indicated by the association of fever, white-centered petechiae, splenomegaly, anemia, and renal embolization, and as confirmed by the culture of Str. viridans from the blood stream. In addition, there was congestive heart failure and renal insufficiency, the latter denoted by the poor concentration of the urine, the low urea clearance, and the azotemia.

*Treatment.*—Treatment was begun with procaine penicillin in aluminum monostearate. The patient received 1,200,000 units of procaine penicillin per day for nine days, after which the dosage was increased to 1,800,000 units per day because of the persistence of low grade fever, even though cultures of the blood were negative. After 19 days of this higher dosage, the dose was again increased to 2,400,000 units a day because of periodic low grade fever, and this dosage was continued for an additional 21 days. Thus the patient received a total of seven weeks of therapy, during which cultures of the blood were continuously negative. In addition, he was treated for congestive heart failure, with a satisfactory clinical response.

*Second Admission.*—Two months after leaving the hospital, the patient was readmitted because of a history of low grade fever and swelling of the ankles for two weeks, and the growth of Str. viridans in blood cultures made in a routine follow-up examination.

Examination again revealed fever, a cardiac murmur, anemia, microscopic hematuria, elevated erythrocyte sedimentation rate, three positive blood cultures for Str. viridans, and evidence of congestive heart failure and renal insufficiency.

In view of the relapse following penicillin therapy and the in vitro sensitivity to aureomycin, the patient was treated with aureomycin in doses varying between 4 and 2 gm. daily for a total of 56 days (table 2). During this period his blood cultures became negative, the temperature returned to normal levels in four days, and he felt subjectively improved. He experienced transient episodes of auricular fibrillation with continuous manifestations of mild congestive heart failure, which was treated with rest, low sodium diet, digoxin, and mercurial diuretics.

*Third Admission.*—Two weeks after his discharge from the hospital, the patient had a recurrence of pain in his left flank, associated with the passage of reddish brown urine. One week later a culture of his blood was positive for Str. viridans, and he was readmitted to the hospital in May, 1950.

Once again the patient presented the same clinical picture of fever, anemia, splenomegaly, cardiac murmur, cardiac enlargement, and signs of congestive heart failure. Further cultures of the blood grew the Str. viridans, which was sensitive to penicillin as well as to aureomycin, streptomycin, and chloramphenicol. In view of the previous failure with 2,400,000 units of penicillin daily, and in view of the possibility that the combination of penicillin and aureomycin might possess more effective bactericidal action than penicillin alone, the patient was given 4,800,000 units of penicillin intramuscularly and 4.0 gm. of aureomycin orally each day for a period of 14 days. Thereafter, because of intolerance to aureomycin, and because sensitivity studies failed to disclose any significant synergism of aureomycin and penicillin, the aureomycin therapy was discontinued and procaine penicillin therapy was continued intramuscularly for an additional 28 days with a daily dosage of 9,600,000 units. The penicillin blood level with this dose ranged up to 30 units per cubic centimeter of blood. Cultures of the blood were all negative; the patient again became afebrile, and his well-being increased. However, evidence of congestive heart failure persisted, with the development of chronic auricular fibrillation.

*Fourth Admission.*—The patient was readmitted two months later, in September, 1950, with the complaints of increasing dyspnea, swelling of the ankles, and insomnia, despite intensive treatment of his heart failure. Examination disclosed signs of advanced congestive heart failure. Fever was absent on this admission, and there were no petechiae or emboli. The hemoglobin

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[1] Friedberg, C. K.: Subacute Bacterial Endocarditis: Revision of Diagnostic Criteria and Therapy, J. A. M. A. **144**: 527 (Oct. 14) 1950.

was 14.5 gm. per 100 cc. He was treated with oxygen, digoxin, and diuretics without avail. Cheyne-Stokes respiration appeared, and the patient died on the third day of hospitalization, approximately one year after his first admission.

*Postmortem Findings.*—Findings at autopsy were as follows: rheumatic heart disease, inactive with mitral valvulitis, and endocarditis of the left atrium; subacute bacterial endocarditis, healed and active, involving the mitral valve and wall of the left atrium; cardiac hypertrophy and dilatation (heart weight, 500 gm.) and myocardial fibrosis; mural thrombus of the right auricular appendage and embolism to a branch of the pulmonary artery supplying the upper lobe of the left lung; chronic passive congestion of the viscera, including the liver, spleen, kidney, gastrointestinal tract, and lungs, with moderate bilateral hydrothorax; congestive splenomegaly (spleen weight 400 gm.); healed Loehlein-Baehr lesions and mild arteriosclerosis of the kidneys. Microscopic examination showed bacteria in the valves.

## COMMENT

In an analysis of previous fatal cases, errors in diagnosis, persistently negative cultures of the blood, which delayed diagnosis or hampered the choice of the appropriate antibiotic and adequate dosage, or isolation of a highly resistant organism seemed to account for many of the fatalities.[1] None of these factors appeared to apply in this case. Recent studies have indicated that the host factor of defense against the causative micro-organism and healing is rarely an effective mechanism in subacute bacterial endocarditis.[2] This is supported by the rarity of spontaneous cure of this disease prior to effective antibiotic therapy.[3] It has been suggested that with many diseases, such as lobar pneumonia, brief inhibition of growth of the pneumococci permits cellular and humoral host defenses to cure the disease. On the other hand, in subacute bacterial endocarditis, it appears necessary to kill virtually all the causative organisms to effect a cure, because the host defense is of minimal assistance.[2]

TABLE 1.—*Sensitivity of Streptococcus Viridans in Vitro**

| Admission | Agent to Which Str. Viridans Proved Sensitive, Amount | Times as Resistant as Standard |
|---|---|---|
| 1st.............................. | Penicillin, 0.3 unit/cc | 15 |
| | Aureomycin, 0.2 µg/cc. | 1 |
| | Streptomycin, 0.6 µg/cc. | 3 |
| 2nd.............................. | Penicillin, 0.5 unit/cc. | 2½ |
| | Aureomycin, 0.4 µg | 2 |
| | Streptomycin, 0.4 µg | 2 |
| 3rd.............................. | Penicillin, 0.02 unit/cc. | 1 |
| | Aureomycin, 0.4 µg/cc. | 2 |
| | Streptomycin, 0.1 µg/cc. | ½ |
| | Chloramphenicol, 0.8 µg/cc. | 1.6 |
| | Completely inhibited by sulfadiazine, 1 mg./100 cc. | .. |

* There was no growth in the culture made on the patient's fourth admission.

In view of these considerations, was adequate dosage of the appropriate antibiotic given? We must be guided by sensitivity studies in vitro, concentrations of the antibiotic in the blood, and the clinical response of the patient. The antibiotic therapy appeared clinically adequate in the second and third admission, when the temperature course was restored to normal and cultures of the blood were persistently negative. During the first admission, cultures of the blood were also negative after treatment was begun, but the temperature, although considerably reduced, occasionally ranged above normal. However, it is not uncommon to observe low grade fever during the period of penicillin administration in successfully treated patients.

With respect to sensitivity studies, a distinction should be made between bacteriostatic and bactericidal action. When the sensitivity of a micro-organism to a given antibiotic is ordinarily reported by the laboratory, it denotes a bacteriostatic effect. Thus a sensitivity of 0.3 indicates inhibition of multiplication by 0.3 unit of penicillin per cubic centimeter. However, many organisms remain viable with this concentration of antibiotic and will continue to multiply if transplanted to fresh culture mediums or if penicillinase is added. It has been general practice in the treatment of subacute bacterial endocarditis to try to attain a bactericidal antibiotic concentration that is 5 to 10 times as great as that indicated by in vitro (bacteriostatic) sensitivity studies (table 3). The patient in this case suffered a relapse after his first period of treatment, although blood levels of penicillin were more than 5 and often more than 10 times the reported sensitivity of the causative Str. viridans (tables 1 and 2). Perhaps in this instance the bactericidal concentration, which was not determined, was substantially more than 10 times the bacteriostatic level. Actually, on the third admission it was found that the bactericidal level was 40 times the bacteriostatic; that is, 0.8 unit of penicillin per cubic centimeter was needed to completely kill the organism while only 0.02 unit sufficed to inhibit growth.

TABLE 2.—*Treatment in the Case Reported**

| Admission | Drug | Daily Dose | Duration, Days | Antibiotic Level |
|---|---|---|---|---|
| 1st | Penicillin with aluminum monostearate | 1,200,000 units | 4 | 2 units/cc. |
| | Penicillin with aluminum monostearate | 1,800,000 units | 19 | 5 units/cc. |
| | Procaine penicillin | 2,400,000 units | 27 | 5 units/cc. |
| | Total.......... | 103,800,000 units | | |
| 2nd | Aureomycin | 4.0 gm. | 13 | 4 µg/cc. |
| | Aureomycin | 2.0 gm. | 9 | 2 µg/cc. |
| | Aureomycin | 3.0 gm. | 34 | 5 µg/cc. |
| | Total.......... | 172.0 gm. | | |
| 3rd | Procaine penicillin | 2,400,000 units | 3 | ........... |
| | Procaine penicillin<br>Aureomycin | 4,800,000 units<br>4.0 gm. | 14 | ........... |
| | Procaine penicillin | 9,600,000 units | 28 | 30 units/cc. (penicillin) |
| | Total.......... | 313,000,000 units of penicillin<br>56.0 gm. of aureomycin | | |

* No antibiotic therapy during the patient's fourth admission.

TABLE 3.—*Results of Special Studies on Sensitivity and Synergism*

| Antibiotic | Inhibition (Bacteriostatic) | Completely Killed (Bactericidal) |
|---|---|---|
| Penicillin.............................. | 0.02 unit/cc. | 0.8 unit/cc. |
| Chloramphenicol.................... | 0.8 µg/cc. | 8.0 µg/cc. |
| Aureomycin.......................... | 0.4 µg/cc. | 4.0 µg/cc. |
| Streptomycin........................ | 0.1 µg/cc. | 4.0 µg/cc. |
| Sulfadiazine.......................... | 1 mg./100 cc. | Growth still present at 100 mg./100 cc. |
| Penicillin............................<br>Streptomycin...................... | 0.4 unit<br>2.0 µg | 0.72 unit<br>3.6 unit |
| Penicillin............................<br>Aureomycin........................ | 0.32 unit<br>1.6 µg | 0.4 unit<br>2.0 µg |

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[2] Hunter, T. H.: Speculations on the Mechanism of Cure of Bacterial Endocarditis, J. A. M. A. **144:** 524 (Oct. 14) 1950.

[3] Libman, E., and Friedberg, C. K.: Subacute Bacterial Endocarditis, ed. 2, New York, Oxford University Press, 1948.

The essentially bacteriostatic but not bactericidal action of the sulfonamides (table 3) accounts for the frequent temporary clinical remissions but only occasional cures, despite high dosage and prolonged administration that followed their use in the era before penicillin.[4] Aureomycin, also, is usually only bacteriostatic against the nonhemolytic streptococci, causing subacute bacterial endocarditis.[5] Although the patient received 172 gm. of aureomycin over a period of eight weeks, during which cultures of the blood were negative, and he appeared clinically asymptomatic, there was a prompt relapse after the antibiotic therapy was discontinued. In this hospital similar experience was encountered in 5 of 10 other patients treated with aureomycin.[5]

Careful studies were made on the third admission, both to determine the dosage of penicillin that would be expected to have a bactericidal action on the causative Str. viridans and to determine whether treatment with a combination of penicillin with some other antibiotic would be more effective than with either alone. A review of table 2 and table 3 will disclose that the blood concentrations of penicillin far exceeded the bactericidal level and should have sufficed to eradicate the infection. Furthermore, during two weeks of the total of more than six weeks, aureomycin was combined with penicillin. Notable synergistic effects had previously been reported with penicillin and streptomycin in the treatment of subacute bacterial endocarditis due to the highly resistant Enterococcus or Streptococcus fecalis [2] and more recently with aureomycin and streptomycin in the treatment of brucellosis.[6] However, combinations of antibiotics are not always more effective than the individual ones and may be less effective. Thus Jawetz and his associates [7] found that the use of chloramphenicol in combination with penicillin actually curtailed the bactericidal effect of penicillin alone on enterococci, and similar observations were made recently by Spicer.[8] The use of combinations of antibiotics is inadvisable except after careful preliminary bacteriologic study. In the case presented here such studies revealed that aureomycin did not increase the bactericidal effect and actually reduced the bacteriostatic effect of penicillin.

When death occurs from congestive heart failure, the bacterial infection of the heart valves may or may not be cured. If there is no evidence of active bacterial infection, the cardiac failure may be attributed to the nonspecific toxic effect on a rheumatic heart with low cardiac reserve, to activation of rheumatic inflammation, or to the direct valvular destruction and myocardial damage caused by the bacterial infection prior to cure. In this case there was no evidence of activation of rheumatic inflammation. On the other hand, as is often found in patients with subacute bacterial endocarditis dying of heart failure after the infection appears eliminated, postmortem examination disclosed that active bacterial infection was still present. This indicates that valvular and myocardial damage due to bacterial endocarditis had occurred not only prior to the first hospital admission, and in the brief periods between treatment when positive blood cultures were obtained, but continuously from the onset of the disease and throughout almost a year of repeated hospitalizations.

There is uncertainty as to the cause of the persistent bacterial infection in view of the relative sensitivity of the causative micro-organism and the seeming adequacy of appropriate antibiotic therapy. Perhaps the dosage of penicillin during the first period of treatment might now be regarded as not sufficiently generous, even though the blood cultures became negative and antibiotic levels of the blood appeared adequate. On the other hand, since the sensitivity of the organism to penicillin did not diminish, it might have been anticipated on the basis of numerous experiences in other cases that retreatment with the much larger doses that were subsequently given would have effected a cure.

It appears probable that the therapeutic failure in this case was not dependent on the character of the treatment or the promptness with which it was initiated in the hospital, but that it was predetermined by events prior to hospitalization. The onset of the patient's illness appeared to have occurred at least three months prior to his admission. The diagnosis of subacute bacterial endocarditis had not been entertained prior to hospitalization. The development of congestive heart failure one month prior to admission was probably the result of the valvular and myocardial lesions of bacterial endocarditis and denotes that the disease was already advanced at that time. Similarly, the presence of renal insufficiency at the time of the patient's first hospitalization also suggests the presence of advanced bacterial endocarditis. Previous studies have indicated that the mortality rate from subacute bacterial endocarditis increases substantially when the duration of the illness exceeds two months and that the presence of cardiac failure or renal insufficiency usually indicates late manifestations of the disease.

Our discussion thus far has been concerned with the adequacy of penicillin therapy in this case, and our conclusion was that treatment was probably adequate. This discussion presupposed that the antibiotics administered actually reached all the micro-organisms in the valves and other bacterial foci. However, pathological studies disclose that the bacteria are often deep seated in avascular valve tissue and that they may be protected from the action of blood and its contained antibiotic by substantial quantities of fibrin and degenerative necrotic tissue. The probability of such deep-seated bacterial lesions increases with the duration of the disease prior to the commencement of adequate treatment. In this as in other fatal cases of long duration prior to treatment, it seems probable that failure to eradicate the infection denotes failure of the antibiotic to reach such deep-seated bacterial foci even when the concentration of the antibiotic in the blood stream far exceeds the necessary bactericidal level. These considerations reemphasize the importance of early diagnosis and early treatment before deep, inaccessible bacterial lesions are formed and before extensive myocardial and valvular damage occurs. The fact that patients are rarely hospitalized before they have been ill for six weeks indicates that the problem primarily concerns the general physician practicing outside the hospital.

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[4] Lichtman, S. S.: Treatment of Subacute Bacterial Endocarditis: Current Results, Ann. Int. Med. **19**: 787, 1943.

[5] Friedberg, C. K.: The Treatment of Subacute Bacterial Endocarditis with Aureomycin, J. A. M. A. **148**: 98 (Jan. 12) 1952.

[6] Herrell, W. E., and Barber, T. E.: A New Method for Treatment of Brucellosis, J.A.M.A. **144**: 519 (Oct. 14) 1950.

[7] Jawetz, E.; Gunnison, J. B., and Coleman, V. R.: The Combined Action of Penicillin with Streptomycin or Chloromycetin on Enterococci in Vitro, Science **111**: 254, 1950.

[8] Spicer, S.: Bacteriologic Studies of the Newer Antibiotics: Effect of Combined Drugs on Microorganisms, J. Lab. & Clin. Med. **36**: 183, 1950.

### SUMMARY

This is a report of a case of subacute bacterial endocarditis in which death occurred from congestive heart failure after three courses of therapy that seemed effective during each period of observation. Despite the use of penicillin and aureomycin, singly and in combination in apparently adequate dosage, and despite an apparent bacteriologic cure during life, postmortem examination disclosed active bacterial lesions in the valvular and mural endocardium.

An analysis was made to determine the possible factors responsible for this therapeutic failure. It was concluded that the prolonged duration of the undiagnosed and untreated disease prior to hospitalization was responsible for the development of deep-seated bacterial lesions, which were not accessible to otherwise adequate antibiotic therapy. Cardiac failure was due not only to the bacterial infection prior to treatment but to the continuing effect of the bacterial lesions that were not reached by antibiotics, despite almost a year of treatment.

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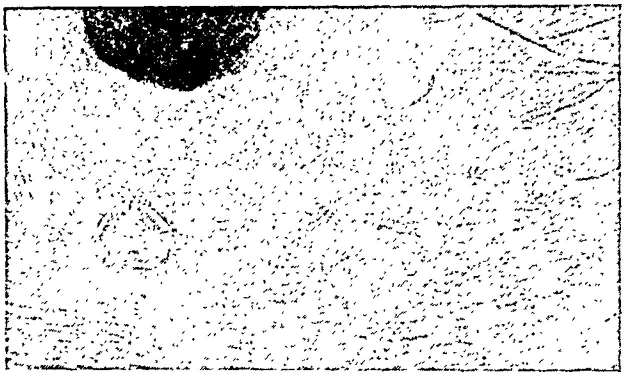
## BARBERS' PILONIDAL SINUS

*John Godwin Downing, M.D., Boston*

A 71-year-old man, who has been a barber for 40 years, stopped work in August, 1950, because of dermatitis of the right hand. While he was cutting hair, short bristles would frequently irritate the second interspace of his right hand. Gradually, a rash appeared at this area and spread over the hand and forearm. Examination on Sept. 25, 1950, showed marked erythema, edema, and vesiculation of the fingers of both hands. The patient said he had had no eruption elsewhere. This dermatitis responded to soothing treatment in three weeks. The patient then admitted having an ulcer on his right ankle, which had not responded to treatment by a vascular surgeon, and he requested therapy. The ulcer healed on Nov. 7. His right hand had remained well; however, a small, red, pouting sinus was seen at the right second interspace. Protruding from this sinus was a small hair; in fact, the lesion looked like an infected hair follicle. This was considered unusual, inasmuch as hair follicles do not exist at the digital spaces. Noting my interest, the patient immediately squeezed the surface of the interdigital skin, and two hairs protruded. He then informed me that he was constantly extruding hairs from this opening, and, by squeezing the area, other hairs appeared.

Despite the fact that I have treated many barbers and hairdressers, this type of sinus formation was novel in my experience; however, a review of recent literature proved that Patey and Scarff [1] had described a discharging sinus at the right fourth interdigital web of a 31-year-old barber. The entire sinus was excised, and the histological appearance was said to be identical to that of a postanal pilonidal sinus, being lined with squamous epithelium and containing a hair follicle. The deeper part of the tract was lined by granulation tissue and debris. They concluded that the history of the case and difficulty of any developmental anomaly appearing at this site was strong evidence that the case was one of a pilonidal sinus, due to puncture of the skin by a hair. They stated that this type of lesion, or a type similar to it, was common among barbers and hairdressers; however, I think it must be rare in this country.

Following Patey's and Scarff's report, Ewing [2] described a painful swelling on the dorsum of the right third interdigital web of a 52-year-old barber. The swelling followed the patient's removal of hairs at this area. On examination, a thin, tender, thread-like tract could be palpated at this area, extending 1.5 cm. proximally from the sinus opening. The lesion was dissected away, and histological examination revealed a typical foreign body granuloma with giant cells. No hair, hair follicles, or squamous epithelium could be seen. Ewing was not convinced of Patey's and Scarff's theory that a small proportion of pilonidal sinuses were developmental in origin and that a great majority were of an acquired infective origin, often initiated by an ingrowing hair.



Pouting sinus containing hair.

In a later report Patey and Scarff [3] mentioned another barber who had a similar pilonidal sinus. As a result of their observations, they postulated that pilonidal sinus is not fully explained on a developmental basis but is essentially an acquired infective and foreign body reaction to buried hair. They explained the occurrence of pilonidal sinus in the fingerwebs and postanal areas as due to alternating tightening and loosening of tissue in these areas. Extensive driving on hard seats predisposes to pilonidal sinus, "jeep disease." The suction caused by the skin moving back and forth over the sacrum draws hairs into the soft tissues. This, however, does not explain the occurrence of pilonidal sinus in young women who show an absence of any but the fine lanugo hairs in this area.

520 Commonwealth Ave.

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1. Patey, D. H., and Scarff, R. W.: Pathology of Postanal Pilonidal Sinus: Its Bearing on Treatment, Lancet 2: 484, 1946.

2. Ewing, M. R.: Hair-Bearing Sinus, Letters to the Editor, Lancet 1: 427, 1947.

3. Patey, D. H., and Scarff, R. W.: Pilonidal Sinus in a Barber's Hand, with Observations on Postnatal Pilonidal Sinus, Lancet 2: 13, 1948.

# COUNCIL ON PHARMACY AND CHEMISTRY

## REPORT TO THE COUNCIL

*The Council has authorized publication of the following report from its Committee on Research.*

ROBERT T. STORMONT, M.D., *Secretary.*

*The Committee on Research, through its Subcommittee on Steroids and Cancer, is sponsoring a collaborative study on steroids and mammary cancer. Reports summarizing this work have been published (Estrogens and Androgens in Mammary Cancer, Report to the Council on Pharmacy and Chemistry,* J. A. M. A. **140**:*1214 [Aug. 13] 1949. Proceedings of the First Conference on Steroid Hormones and Mammary Cancer, Chicago, A. M. A. [April] 1949. Current Status of Hormone Therapy of Advanced Mammary Cancer, Report to the Council on Pharmacy and Chemistry,* J. A. M. A. **146**:*471 [June 2] 1951).*

*In the following report, the conclusions expressed are those of the authors and final conclusions of the Subcommittee must await evaluation of the studies now in progress.*

PAUL L. WERMER, M.D., *Secretary.*

## EFFECT OF TESTOSTERONE ON PATIENTS WITH BONE METASTASES

### A METABOLIC STUDY, PARTICULARLY OF BREAST CARCINOMA

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*Judith Bellin, M.S., Estelle D. Gottesman, B.S.*
*and*
*Cyril A. Schulman, M.D., New York*

In the past decade, hormonal therapy has been advocated in the palliative management of patients with metastatic breast carcinoma [1]; reports of temporary palliation have been published from many centers,[2] and a wide discrepancy between the incidence of subjective and objective improvement has been noted.

In a preceding paper,[3a] it was pointed out that metabolic studies are an important aid in defining the course of malignant disease, in gaging the effect of therapeutic agents, and in studying their mode of action. The mineral metabolism of patients with active osteolysis has been characterized by elevated urinary calcium and phosphorus excretions and negative balances.[3] At times, excessive rates of demineralization exceed the ability of the kidneys to excrete calcium, resulting in hyperlcemia.[3a] Conversely, patients with osteoblastic metastases have characteristically subnormal urinary calcium excretion and a tendency to maximal calcium retention.[4] On occasion, patients with osteolytic metastases may spontaneously have temporary phases of bone repair, evidenced by a metabolic behavior that approaches the calcium-retentive traits seen in osteoblastic cases.

The purpose of the present study is to observe the effect of testosterone on the metabolism of patients with osteolytic metastases secondary to breast carcinoma. If the hormone were to encourage the remineralization of osteolytic areas, the process would be evidenced by improvement in the mineral balances.

After metabolic studies in the pretreatment phase, testosterone was administered to six patients [5] with osteolytic metastases secondary to breast carcinoma. To assess whether the results attained were specific for breast carcinoma, a tumor that is presumed to be influenced by hormones, control studies were performed with patients having other types of malignancy. A patient with extensive osteolytic metastases secondary to leiomyosarcoma of the vulva was given testosterone. A male patient with multiple myeloma was given estrogen therapy initially and later testosterone. Finally, the effect of radiation castration was observed in a premenopausal patient with osteolytic metastases secondary to breast carcinoma.

The various effects observed are illustrated by the cases reported in this paper.

### NITROGEN RETENTION INDUCED BY TESTOSTERONE WITH MINIMAL IMPROVEMENT IN CALCIUM BALANCE

Case 1, a 50-year-old white woman, had extensive osteolytic and pulmonary metastases secondary to leiomyosarcoma of the vulva that had been resected three years previously. Metastases, which progressed slowly, were noted a year later. At no time during the course of the disease were major complications, such as severe anemia, pathologic fracture, or hypercalcemia, noted.

Metabolic studies were conducted for a total of 153 days (fig. 1). At that time, the patient was ambulatory and in a fairly good nutritional state. The pretreatment phase lasted for 21 days, during which the patient was in slightly positive nitrogen and phosphorus balance and in negative calcium balance with a moderately elevated urinary calcium excretion.

Upon the administration of testosterone, a total of 2.25 gm. in 45 days, urinary nitrogen excretion dropped immediately, resulting in a highly positive nitrogen balance. The calcinuria was somewhat decreased, so that the calcium balance was slightly less negative.

The studies were then discontinued for 62 days during which time testosterone was not administered. In the first 15 days after the resumption of studies, the nitrogen and phosphorus balances were similar to those observed in the first pretreatment phase, but the urinary and fecal calcium values were lower than previously. Upon the additional administration of 1.8 gm. of testosterone in 36 days, an immediate drop in urinary nitrogen and phosphorus excretion was again noted, resulting in a positive nitrogen and phosphorus balance. The calcium excretion, however, showed no further change.

To observe the possible favorable effect of testosterone on the mineral balance if an adequate supply of calcium were furnished, the daily administration of testosterone was continued in conjunction with an increased calcium intake. In this patient the presumption did not prove to be correct. Although the anabolic effect of testosterone on the nitrogen metabolism was still clearly demonstrable, the urinary calcium remained uninfluenced. The calcium balance became positive but to an extent no greater than that observed when calcium intake was increased without the additional administration of testosterone.[3a] With increased fecal calcium elimination, more phosphorus was now excreted through the stool and the phosphorus balance became somewhat less positive. These changes are similar to those seen in patients on a similar dietary calcium:phosphorus ratio who did not receive testosterone.

This case illustrates a definite anabolic effect of testosterone on protein metabolism. It induced a total retention of 194 gm. of nitrogen corresponding to 1,213 gm. of protein. The patient gained only 1.2 kg. of body weight in this phase. No major changes were noted in the patient's clinical condition and laboratory data with the exception of roentgenograms which showed slow progression of osteolysis. No major improvement of the calcium metabolism was induced by testosterone.

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Dr. Schilling is a trainee of the National Cancer Institute.

From the Division of Neoplastic Diseases, Montefiore Hospital.

This project has been supported in part by a grant from the National Cancer Institute of the National Institutes of Health, United States Public Health Service and by a grant from the American Cancer Society.

1. (*a*) Haddow, A.; Watkinson, J. M., and Patterson, E.: Influence of Synthetic Oestrogens upon Advanced Malignant Disease, Brit. M. J **2**: 393 (Sept. 23) 1944. (*b*) Hermann, J. B.; Adair, F. E., and Woodard, H. Q.: The Use of Testosterone Propionate in the Treatment of Advanced Carcinoma of the Breast. II. The Treatment of Osseous Metastases, Surgery **22**: 101 (July) 1947. (*c*) Nathanson, I. T.; Adair, F. E.; Allen, W., and Engle, E. T.: Estrogens and Androgens in Mammary Cancer: (A Progress Report of a Sub-Committee of the Therapeutic Trials Committee of the Council on Pharmacy and Chemistry), J. A. M. A. **140**: 1214 (Aug. 13) 1949.

2. Proceedings of the First Conference on Steroid Hormones and Mammary Cancer: The Therapeutic Trials Committee of the Council on Pharmacy and Chemistry of the American Medical Association, Chicago, 1949.

3. (*a*) Laszlo, D.; Schulman, C. A.; Bellin, J.; Gottesman, E. D., and Schilling, A.: Mineral and Protein Metabolism in Osteolytic Metastases, J. A. M. A. **148**: 1027 (March 22) 1952. (*b*) Laszlo, D.: Mineral Metabolism in Metastatic Bone Cancer, Cancer Res. **9**: 614 (Oct.) 1949. (*c*) Laszlo, D.; Schulman, C. A.; Bellin, J.; Gottesman, E. D., and Schilling, A.: Metabolic Studies of Patients with Carcinoma of the Breast and the Effects of Testosterone Therapy, ibid. **10**: 230 (April) 1950.

### MINERAL LOSS INDUCED BY TESTOSTERONE IN SPITE OF NITROGEN RETENTION

Case 2, a 57-year-old postmenopausal woman, had carcinoma of the left breast. Radical mastectomy, followed by radiotherapy, was performed and the patient was asymptomatic for four years, when extensive osteolytic metastases with spontaneous hypercalcemia developed. Testosterone was then administered but resulted only in temporary symptomatic improvement followed by progression of symptoms and findings. When admitted to the hospital, the patient was in hypercalcemic crisis. Testosterone was discontinued and intravenous fluid administration begun, resulting in a return of serum calcium and blood urea nitrogen values to normal levels, decrease in pain, and ambulation. At this time, the patient showed evidence of weight loss, masculinization, extensive osteolytic metastases with rib and vertebral fractures, diplopia, and blurred vision. The renal function, as measured by urinary concentration and urea clearance tests, was unimpaired.

Metabolic studies began two and one-half months after the discontinuation of testosterone and were conducted for nine periods totaling 54 days. The data are illustrated in figure 2. The pretreatment phase consisted of six periods, three on a low calcium intake and the next three on a higher calcium intake. In this phase, the nitrogen balance was in equilibrium. The phosphorus balances showed a retention on a low calcium intake which changed toward equilibrium on increased calcium intake. This change was mainly caused by an increase in fecal phosphorus and followed the trend which has already been described.[3a] The urinary calcium excretion was subnormal in the first three periods, indicating attempt at bone repair. In periods 4 to 6, the urinary calcium excretion tended to rise, but remained within normal limits. The calcium balance was only slightly negative on a low calcium intake. Minimal utilization (10%) of calcium gluconate was achieved in periods 4 to 6, resulting in only slight improvement of the calcium balance. The testosterone phase was clearly characterized by gradual decrease in urinary nitrogen and improvement in nitrogen balance. In contrast to the nitrogen retention was the mineral loss occurring during testosterone therapy. Hypercalcinuria occurred in the initial period of testosterone and increased progressively to excessive values accompanied by hyperphosphaturia. The excess urinary calcium and phosphorus loss approximated the ratio of these minerals in bone. The rate of mineral breakdown exceeded the urinary excretion, resulting in hypercalcemia. The calcium and phosphorus balances became progressively negative.

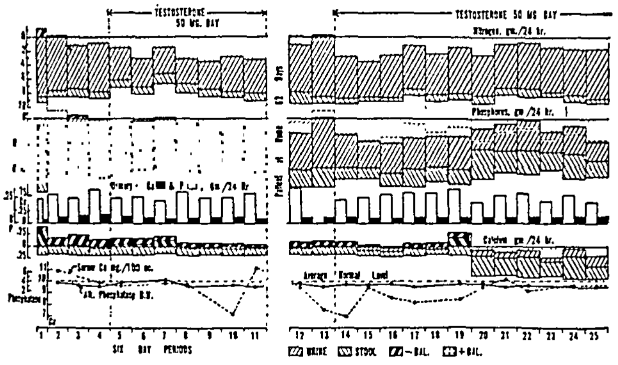

Fig. 1.—Metabolic data of a patient with leiomyosarcoma of the vulva and osteolytic metastases (case 1). All periods are for six days except periods 11 and 12 which are nine-day periods. Testosterone, 50 mg. per day, was administered in periods 5 to 11 and in periods 14 to 25, inducing nitrogen retention.

The metabolic data graph is charted according to Reifenstein, Albright, and Wells. Horizontal lines at zero in the balance graphs indicate the equilibrium between intake and output. Intake is charted from the zero line downward. Output is charted from the intake line upward toward the zero line. Interrupted lines in the phosphorus graph represent areas corresponding to the theoretical phosphorus retention or loss, calculated on the basis of theoretical N:P and Ca:P ratios. One unit of the phosphorus scale equals 15 units of the nitrogen scale and 2 units of the calcium scale.

Metabolic studies had to be discontinued for 11 days, at which time the serum calcium rose to 18.9 mg. per 100 cc. and the blood urea nitrogen to 74.8 mg. per 100 cc. Urinary collections were resumed for two periods when only intravenous feeding was feasible. Although a trend toward improvement in serum calcium and blood urea nitrogen levels was achieved, the patient died several days later of uremia. In the last period, almost 0.9 gm. of urinary calcium was excreted daily. At autopsy, marked nephrocalcinosis was found.

### MINERAL AND NITROGEN LOSS INDUCED BY TESTOSTERONE

Case 3, a 47-year-old woman, underwent a left radical mastectomy two years prior to metabolic studies. Soon after the operation, osseous metastases were noted and the patient became bedridden with pain. The administration of 0.8 gm. of testosterone resulted in a cessation of menses but produced no symptomatic improvement. Subsequent radiotherapy to the lumbar spine and pelvis did not produce relief. Five months later, after a hypercalcemic crisis which improved after parenteral fluid was administered, testosterone therapy was reinstituted, the patient receiving a total of 4.1 gm. over a nine-month period. This therapy provoked hypercalcemia (15.1 mg. per 100 cc.), hypopotassemia (6.7 mg. per 100 cc.), nausea, vomiting, and dehydration. Testosterone was discontinued, and parenteral fluid and potassium were administered, resulting in a return to normal of the serum calcium and potassium within three weeks. However, anorexia and vomiting persisted, the blood urea nitrogen was 24.5 mg. per 100 cc., and the patient sustained a pathologic fracture of the left femur.

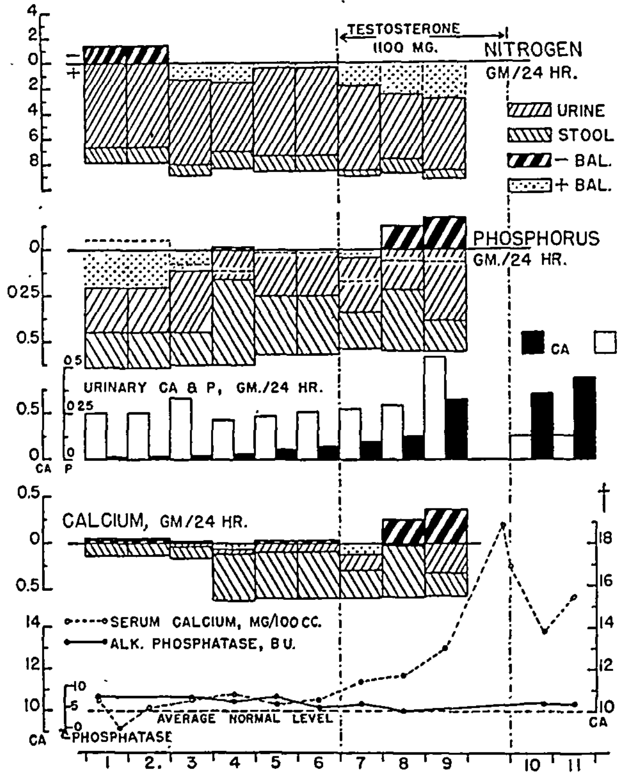

Fig. 2.—Metabolic data of a patient with breast carcinoma and osteolytic metastases (case 2). All periods are for six days. Testosterone, 50 mg. per day, was administered in periods 7 to 9, inducing hypercalcemia, nitrogen retention, and negativity of mineral balances.

Ten days later, at the time metabolic studies began, the patient had been bedridden for 22 months and was in poor nutri-

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4. Aub, J. C.: Personal Communication to the author. Aub, J. C.; Tibbets, D. M., and Nathanson, I. T.: Metabolic Effects of Treatment of Carcinoma of the Prostate, Cancer Res. **7**: 723 (Nov.) 1947. Schilling, A.; Bellin, J.; Gottesman, E. D., and Laszlo, D.: Metabolic Studies of Patients with Carcinoma of the Prostate and the Effects of Stilbestrol Therapy, ibid. **10**: 239 (April) 1950. Schilling, A., and Laszlo, D.: The Effect of Diethylstilbestrol on the Calcium, Phosphorus and Nitrogen Metabolism of Prostatic Carcinoma, J. Clin. Investigation **29**: 918 (July) 1950.

5. These cases have been mentioned in a previous report as cases 3, 4, 6, 7, 8, and 9 (see footnote 3a). Cases 2 and 3 of this paper correspond to cases 8 and 9 of the previous report and are now described in detail as illustrative of the results obtained in this series.

tional state. The studies totaled 155 days, and are shown in figure 3. During the first five days of study, a moderately elevated calcinuria was noted. Later, urinary calcium excretion dropped toward subnormal values (as low as 20 mg. per day), calcium balance improved and was only slightly negative on a low calcium intake, and the patient was maintained in a state of nitrogen and phosphorus balance. The serum calcium was normal and the alkaline phosphatase elevated.

After 53 days of study, a total of 1.2 gm. of testosterone was administered intramuscularly in 24 days. Nine days after the institution of the hormone therapy, nausea and vomiting recurred, and the food and fluid intake decreased. Urinary calcium and phosphorus excretions rose rapidly. In the second period of hormone administration, the serum calcium rose to hypercalcemic levels and the alkaline phosphatase fell, indicating accelerated osteolysis. The average calcium balance during testosterone administration (–628) was five times that of the pretreatment periods (–129). The phosphorus balance, which was in equilibrium during the pretreatment phase, became negative because of the increased urinary phosphorus. The nitrogen balance became negative due to nausea, vomiting, and the decrease in food intake.

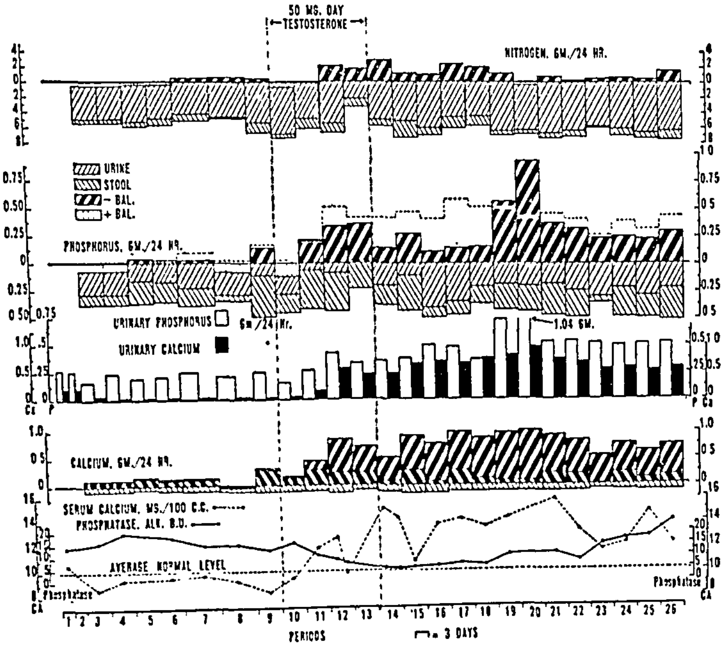

Fig. 3.—Metabolic data of a patient with breast carcinoma and osteolytic metastases (case 3) All periods are for six days except periods 1, 2, 7, and 8, which total 3, 2, 9, and 9 days respectively. Testosterone, 50 mg. per day, was administered in periods 10 to 13, inducing osteolysis and hypercalcemia.

With the discontinuation of testosterone, vomiting became less severe. However, the urinary calcium and phosphorus excretions increased still further, reaching a peak of 0.94 gm. and 1.043 gm. per day, respectively, six weeks after the discontinuation of testosterone. Clinically, during this phase, the patient showed a progressive downhill course. Accelerated tumor growth was evidenced by a rapidly enlarging nodular liver. Hypercalcemia, azotemia, and negative mineral balances persisted until death which occurred 12 weeks after the discontinuation of the hormonal therapy.

In summary, this case illustrates the metabolic behavior of a patient recovering from a previous hypercalcemic crisis induced by testosterone and in whom definite attempts at bone repair were observable. Reinstitution of testosterone induced another hypercalcemic crisis with excessive bone breakdown which persisted even after hormone therapy was stopped.

### IMPROVEMENT IN CALCIUM BALANCE INDUCED BY DIETHYLSTILBESTROL; IMPROVEMENT IN NITROGEN BALANCE INDUCED BY TESTOSTERONE

Case 4, a 67-year-old white man, had multiple myeloma with extensive osteolysis. Ten weeks prior to the onset of metabolic studies, a compression fracture of the seventh thoracic vertebra caused paraplegia. A course of radiotherapy to the dorsal spine did not relieve pain nor did it improve the paraplegia.

Metabolic studies were performed for 288 days (fig. 4). In the four periods prior to treatment, the patient was in a state of positive nitrogen balance and of phosphorus equilibrium. The urinary calcium excretion was moderately elevated, averaging 0.212 gm. per day, and the balance was negative.

During the following 54 days, 15 mg. per day of diethylstilbestrol ("stilbestrol") was administered intramuscularly, totaling 0.81 gm. Urinary nitrogen excretion increased slightly and the balance became less positive. The phosphorus balance did not change. The urinary calcium excretion dropped promptly and reached values at the lowest limits of normal, resulting in improvement of the calcium balance.

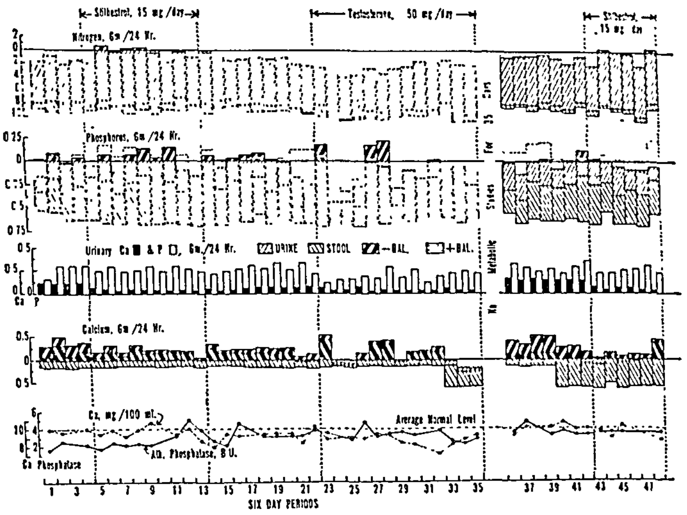

Fig. 4.—Metabolic data of a patient with multiple myeloma (case 4). All periods are for six days. Diethylstilbestrol, 15 mg. per day, was administered in periods 5 to 13 and improved the calcium balance. Testosterone, 50 mg. per day, was administered in periods 23 to 35, inducing nitrogen retention with minimal improvement in the mineral balances. Diethylstilbestrol, 15 mg. per day, was administered in periods 45 to 48 and improved the mineral balances.

Therapy was then discontinued during the following 54 days. The nitrogen balance returned to the previous pretreatment level. The phosphorus balance remained unchanged. Urinary calcium excretion rose slightly and the balance was slightly more negative.

For the following 60 days 50 mg. of testosterone was administered daily, totaling 3 gm. Urinary nitrogen excretion decreased promptly, greatly improving the nitrogen balance. Urinary calcium and phosphorus decreased slightly, resulting in minimal improvement of the mineral balance.

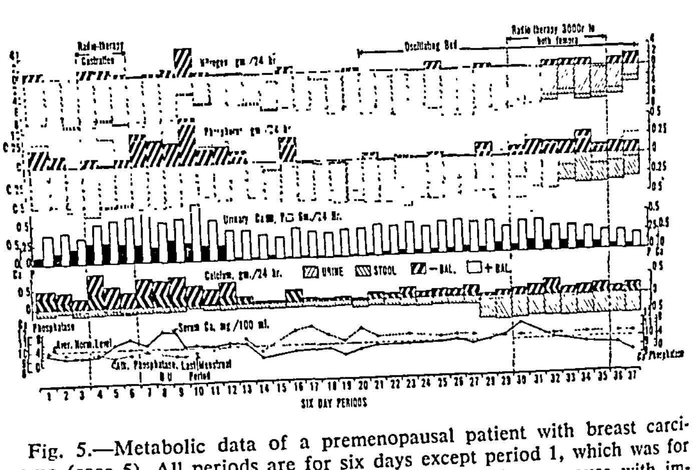

Fig. 5.—Metabolic data of a premenopausal patient with breast carcinoma (case 5). All periods are for six days except period 1, which was for nine days. Radiation castration induced an artificial menopause with improvement in the mineral balances. Subsequent radiotherapy to osteolytic areas in both femora achieved minimal improvement in the calcium balance.

In the succeeding 18 days of study, calcium gluconate was administered orally to increase the calcium intake, and testosterone administration was continued. The urinary nitrogen increased slightly, resulting in a somewhat less positive nitrogen balance. The phosphorus balance did not change significantly. The urinary calcium excretion did not change. However, approximately 80% of the increased calcium intake was retained, resulting in a reversal to positive calcium balance.

Studies were interrupted for 35 days, during which time no hormone was administered. Upon resumption of studies in period 36, the patient was found to have elevated urinary calcium excretion (0.281 gm. per day) and negative calcium balance, with the nitrogen and phosphorus approximately in balance. The oral administration of calcium gluconate did not change the calcinuria but improved the calcium balance with 45% utilization of the added calcium. When diethylstilbestrol was again administered, 0.54 gm. in 36 days, together with calcium gluconate, urinary calcium values decreased, calcium balance further improved, and utilization of the added calcium was 67%. As in the previous course of diethylstilbestrol therapy, the nitrogen excretion rose and the balance was less positive.

In summary, the data illustrate the metabolic behavior of a patient with advanced multiple myeloma and marked osteolysis. Diethylstilbestrol administration improved the calcium balance but only slightly affected nitrogen and phosphorus metabolism. Administration of testosterone improved nitrogen retention but had only minimal effect on calcium and phosphorus metabolism. However, supplementation of the calcium intake resulted in a high rate of utilization of the added calcium. After the effect of hormonal therapy had subsided, mineral catabolism was again evident. Subsequent administration of diethylstilbestrol was shown to achieve the same mineral anabolic effects as were obtained previously.

### IMPROVEMENT IN MINERAL BALANCE INDUCED BY RADIATION CASTRATION

Case 5, a 38-year-old white woman, had extensive osteolytic metastases secondary to breast carcinoma. A radical mastectomy followed by radiotherapy was performed. Osteolytic metastases were noted one year later and the patient was admitted to the metabolic ward for further study.

Metabolic studies were performed for 225 days (fig. 5). The course of the patient can be divided into three distinct phases: (1) osteolytic crisis before castration (periods 1 to 13), (2) beneficial effects of castration with metabolic data suggestive of bone repair, and (3) recurrence of osteolytic activity.

In the first phase, excessive bone breakdown is clearly evidenced by high and continuously increasing urinary calcium and phosphorus excretion and a progressively more negative mineral balance. During period 9, the urinary calcium and phosphorus excretion reached a peak, with negative mineral balances. The excretion of calcium and phosphorus did not keep pace with the rapid rate of bone breakdown, resulting in hypercalcemia and hyperphosphatemia.

After 21 days of observation, radiotherapy was administered to achieve castration, 1,000 r to three pelvic portals. The patient's last menstrual period occurred in period 10. In period 13, 36 days after the completion of radiotherapy, a sudden improvement in the mineral balance occurred. The urinary calcium excretion dropped from 397 to 56 mg. per day, and progressively declined to subnormal levels. The calcium balance improved and became only slightly negative, as is normal with a low calcium intake. The nitrogen and phosphorus balance also improved. The attempt at bone repair is evidenced by a subnormal urinary calcium, a calcium balance approximating equilibrium even on a low calcium intake, and by rising serum alkaline phosphatase values.

This second phase, in which the patient experienced the greatest beneficial effect of castration, lasted 66 days. The urinary calcium and phosphorus excretion then increased progressively. The mineral balance became more negative, indicating renewed bone breakdown. In an attempt to improve the patient's calcium retention, she was placed on an oscillating bed and her low calcium diet was supplemented with calcium gluconate given orally. However, utilization of the supplemented calcium was only 21%, the urinary calcium continued to rise, and the calcium balance remained negative, despite the higher intake.

Because of the danger of pathologic fractures, radiotherapy, 3,000 r to both femora, was administered during periods 31 to 36. The urinary calcium and phosphorus continued to rise until period 35 and then began to fall slightly. Upon the completion of radiotherapy, the urinary mineral excretion improved still further, although the patient was still in negative calcium balance, even on a high calcium intake. It is to be noted that this second phase of osteolysis, occurring after castration, was not as severe as the osteolytic crisis seen while the patient was still menstruating.

In summary, this case illustrates the improvement in mineral metabolism upon radiation castration of a patient in an osteolytic crisis. This favorable effect, however, was only temporary, and further bone breakdown could not be prevented even with the aid of an oscillating bed and a higher calcium intake. Subsequent local radiotherapy at the beginning of a second osteolytic phase may have prevented, for a time, further excessive bone breakdown.

### DISCUSSION

To observe some effects of malignancy on metabolism and evaluate the action of therapeutic agents, 42 patients were studied in the metabolic ward. Of this group, 24 patients had extensive osteolytic malignancy, 8 had osteoblastic metastases, 5 cancer patients had no bone metastases, and 5 patients had nonmalignant disease. Five cases in this series are reported here to illustrate certain points.

Previous reports [3] have presented data which show that active osteolysis secondary to malignancy is characterized by hypercalcinuria, hyperphosphaturia, and negative mineral balances. In cases of extremely rapid bone destruction, these metabolic trends are accentuated, the ability of the kidneys to excrete calcium is exceeded, and hypercalcemia results.[3a] It has been demonstrated [3a] that the mineral catabolism of osteolytic metastases is not specific for any one type of malignancy but is characteristic for all malignancies that cause bone destruction. Metabolic evidence has been presented showing that even advanced malignancy is characterized by periods of spontaneous remissions and exacerbations.[3a]

In bone metastases that cause an osteoblastic response, the metabolism is characterized by extremely low urinary calcium excretion and a calcium balance more positive than normal.[4] Data from this study indicate that improvement in osteolytic metastases is manifested by calcium and phosphorus metabolism that approaches normal and, with rapid bone repair, will even approximate the extreme calcium retention seen in osteoblastic cases.

The present study was conducted to evaluate the effect of hormonal therapy in patients with osteolytic metastases. In assessing the results obtained, an attempt will be made to differentiate between specific effect of the hormone on tumor and nonspecific effect on demineralizing bone. Previous metabolic studies have defined some factors that influence osteogenesis. The skeletal system of normal adults is in a dynamic equilibrium of resorption balanced by an equal rate of new bone formation.[6]

Some of the factors influencing osteogenesis are: (1) dietary intake of the building blocks of bone, (2) absorption from the intestinal tract into the blood stream, (3) utilization of the building blocks by the bone influenced by such endocrine factors as pituitary growth hormone,[7a] gonadal,[8] thyroid,[9] parathyroid,[10] and adrenocortical hormones,[7] (4) functional use of the skeleton,[11] and (5) excretion of minerals.[12]

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[6] Albright, F.: The Effect of Hormones on Osteogenesis in Man, in Recent Progress in Hormone Research, Laurentian Hormone Conference of 1945, New York, Academic Press, Inc., 1947, pp. 293-353.

[7] (a) Becks, H., and others: Antagonism of Pituitary Adrenocorticotrophic Hormone (ACTH) to the Action of Growth Hormone on the Osseous System of Hypophysectomized Rats, Endocrinology 34:311 (May) 1944. (b) Albright, F.: Cushing's Syndrome: Its Pathological Physiology, Its Relationship to the Adreno-Genital Syndrome, and its Connection with the Problem of the Reaction of the Body to Injurious Agents ("Alarm Reaction" of Selye), The Harvey Lectures 38:123, 1942-1943.

[8] Gardner, W. U., and Pfeiffer, C. A.: Influence of Estrogens and Androgens on the Skeletal System, Physiol. Rev. 23:139 (April) 1943.

[9] Aub, J. C.; Bauer, W.; Heath, C., and Ropes, M.: Studies of Calcium and Phosphorus Metabolism; III. The Effects of the Thyroid Hormone and Thyroid Disease, J. Clin. Investigation 7:97 (April) 1929.

[10] Thomson, D. L., and Collip, J. B.: The Parathyroid Glands, Physiol. Rev. 12:309 (July) 1932. Albright, F., and Reifenstein, E. C., Jr.: The Parathyroid Glands and Metabolic Bone Disease: Selected Studies, Baltimore, Williams and Wilkins Co., 1948, pp. 1-121.

[11] Deitrick, J. E.; Whedon, G. D., and Shorr, E.: Effects of Immobilization upon Various Metabolic and Physiologic Functions of Normal Men, Am. J. Med. 4:3 (Jan.) 1948.

[12] Albright, F., and others: Osteomalacia and Late Rickets; The Various Etiologies Met in the United States with Emphasis on That Resulting from a Specific Form of Renal Acidosis, the Therapeutic Indications for Each Etiological Sub-Group, and the Relationship Between Osteomalacia and Milkman's Syndrome, Medicine 25:399 (Dec.) 1946.

Impairment of any of these factors can cause osteolytic bone disease characterized metabolically by hypercalcinuria, hyperphosphaturia, and negative mineral balances, similar to the data obtained in osteolytic malignancies. Metabolic studies have been reported for osteomalacia,[12] steatorrhea,[13] postmenopausal and senile osteoporosis,[14] hyperparathyroidism,[10] Cushing's disease,[13b] immobilization,[11] and renal rickets.[12]

In a number of these diseases, particularly in postmenopausal osteoporosis, androgen and estrogen therapy has induced improvement in calcium, phosphorus, and nitrogen metabolism.[14b] It has been noted that androgen has a significant protein anabolic effect, whereas estrogen induces predominantly mineral anabolism.

In patients with malignant bone disease, severe pain may cause immobilization, and osteoporosis from disuse is often a prominent feature. When gonadal hormones are administered to these patients, a favorable effect may be achieved on the osteoporosis, one that may be entirely nonspecific with respect to tumor growth.

For the purpose of this discussion, a specific effect on tumor shall be considered as one that causes inhibition or acceleration of tumor growth.

Experimental evidence has been advanced indicating that the incidence of mammary carcinoma in susceptible strains of mice is influenced by hormonal factors. This subject has been recently reviewed.[15] It has been demonstrated that ovariectomy decreased the incidence and delayed the appearance of mammary carcinoma in female mice of a susceptible strain [16]; similar results have been achieved by implantation of testes,[17] administration of testosterone,[18] and ovarian irradiation.[19] Ovarian grafts induced mammary cancer in castrated male mice of a susceptible strain and the incidence approximated that in females of that strain [20]; similar results have been achieved by administration of estrogen.[21] However, it must be stressed that these results are attained in mice of high mammary cancer strains. Androgens and estrogens apparently have no effect on the growth of a mammary tumor once it is established in a mouse.[15a]

Numerous clinical investigations have been conducted on the therapeutic effect of hormones in human breast cancer. Surgical or x-ray castration has resulted in clinical improvement of 20 to 56% of premenopausal women with breast carcinoma.[22] Castration has also resulted in improvement of some male patients with breast cancer.[23] Haddow and his collaborators reported great improvement in patients with advanced breast cancer receiving estrogen therapy, and serial biopsies of a few patients showed histological alterations suggesting regression of tumor cells.[1a]

The Committee on Research of the American Medical Association has undertaken to assemble the data of its cooperating investigators on the effects of steroid hormones in the treatment of breast cancer.[24] In a total of 285 patients with metastases treated with androgen, subjective improvement was noted in 62%. Objective improvement in soft tissue lesions was noted in about 20%. Objective improvement in osseous lesions was reported in 18%. In a total of 144 patients treated with estrogen, subjective improvement was reported in 60%. Objective improvement in soft tissue lesions was noted in 43%; a number of osseous lesions showed improvement.

However, there have also been clinical reports suggesting tumor promotion by hormones. Cancer of the breast has appeared in male [25] and female [26] patients receiving estrogens. Apparent acceleration of tumor growth was noted in patients with metastatic breast cancer receiving estrogen or androgen therapy.[27]

Case 1 is a study of the effect of testosterone in a patient with extensive osteolytic metastases secondary to leiomyosarcoma of the vulva. The androgen induced retention of protein and had a slight mineral-anabolic effect. Since this effect is similar to the one expected in a patient with postmenopausal osteoporosis, and since leiomyosarcoma is assumed to be a tumor that is not controlled by hormones, it may be assumed that the favorable effect of testosterone in this case is not a specific tumor-inhibiting effect.

Case 2 is a study of testosterone therapy in a postmenopausal patient with extensive osteolytic metastases secondary to breast carcinoma. Testosterone had the seemingly paradoxical effect of inducing nitrogen retention together with mineral loss causing hypercalcemia. If it were assumed that testosterone induced protein anabolism in tumor tissue, the accelerated rate of tumor growth in the osseous metastases would account for the increased bone breakdown.

Case 3 is a study of the effect of testosterone in a postmenopausal patient with osteolytic metastases secondary to breast carcinoma. The pretreatment phase illustrates a trend toward spontaneous bone repair in a patient with advanced malignancy. This favorable phase was interrupted by the administration of testosterone which promptly induced accelerated osteolysis and hypercalcemia. The accompanying protein catabolism was due to anorexia; the decreased food intake, nausea, and vomiting resulted from hypercalcemia. These catabolic factors outweighed whatever protein-anabolic effect the androgen might have had. As in the previous case, the osteolysis may have been caused by a tumor-promoting effect of testosterone. However, it must also be considered that the hormone may have had a direct mineral-catabolic effect as reported in mice by Gardner and Pfeiffer.[8]

Case 4 is a study of the effects of estrogen, and later androgen, in a patient with multiple myeloma. Estrogen induced mineral anabolism, but did not improve the nitrogen balance. Androgen promoted protein retention, but improved the calcium balance only slightly. This patient was paraplegic and bedridden at the onset of studies and considerable mineral catabolism could be attributable to osteoporosis of disuse. Since multiple myeloma is not considered to be a tumor that is hormonally controlled, the beneficial effects of hormone therapy cannot be considered to be due to tumor inhibition. As in case 1, the favorable effect achieved may not be assumed to be specific for tumor, but rather one of remineralization of osteoporotic areas.

It was reported previously [3a] that 30 to 40% of the ingested calcium gluconate was utilized in patients with osteolytic breast cancer metastases, a rate similar to that observed in normal persons.[28] In case 4, when calcium gluconate was administered with testosterone, the rate of utilization was 80%, indicating the anabolic effect of testosterone. Tracer studies with radioactive calcium and phosphorus are planned to further elucidate this point.

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Case 5 is a study of the effect of radiation castration in a premenopausal patient with extensive osteolytic metastases secondary to breast carcinoma. This artificial menopause induced a definite, but temporary, improvement in mineral and protein balance. It is likely that the palliation achieved was due to tumor inhibition caused by castration.

In none of the six patients with breast cancer who received testosterone during metabolic studies was a beneficial therapeutic effect achieved. Testosterone accelerated osteolysis and induced hypercalcemia in three cases. This small series cannot be used for a statistical evaluation of the efficacy of testosterone therapy. Since the purpose of the study was to define the mechanism when testosterone had an unfavorable action, four of the cases selected for study had previously had adverse effects from androgen therapy. Statistics have been submitted from other centers on the beneficial clinical effects of testosterone.[24]

From the data presented, it appears that testosterone therapy of advanced breast cancer may be most beneficial to those patients in whom it slows down tumor growth and induces recalcification of demineralized areas. A favorable response may also be expected from patients in whom the hormone improves the osteoporosis but does not affect the tumor. However, clinical and metabolic evidence is available to indicate that androgen or estrogen may accelerate tumor growth. In these instances, a more rapid downhill course may result from hormonal administration, with pain, anemia, hypercalcemia, tendency to fracture, and accelerated growth of metastases. There does not appear to be any specific criteria that will enable prediction of the therapeutic response to testosterone in a given patient with breast cancer. Therefore, precaution in the administration of hormonal therapy is indicated, with close clinical and laboratory follow-up.

### SUMMARY

1. To study the action of testosterone under controlled conditions, metabolic experiments were performed in six patients with breast cancer with osteolytic metastases.

2. Control studies were also performed in three patients with extensive osteolytic malignancy. Testosterone was administered to a patient with leiomyosarcoma. Diethylstilbestrol, and later testosterone, was administered to a patient with multiple myeloma. A premenopausal breast cancer patient received x-ray castration.

3. Testosterone induced accelerated osteolysis and hypercalcemia in three patients with breast cancer.

4. Testosterone induced nitrogen retention in the patient with leiomyosarcoma, with minimal improvement in calcium balance.

5. Diethylstilbestrol improved the mineral balance of the patient with multiple myeloma. Testosterone induced nitrogen retention, with slight improvement of the mineral balance.

6. X-ray castration of the patient with breast cancer temporarily improved the mineral balance.

7. The mechanism of these favorable and unfavorable responses to alteration in the hormonal balance has been discussed.

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**Patient-Physician Relationship.**—The essential ingredient of a lasting patient-physician relationship is time, time skilfully apportioned so that the garrulous are not allowed more nor the inarticulate allotted less. When we begin to hurry our patients the bond that is normally strengthened through listening and understanding is weakened. And when we introduce production line methods we are no longer physicians, just licensed pill-peddlers.

The sick sense being hurried and resent it. More than anything else they want us to grant them the warm sympathetic hearing they deserve. Denied this, they search elsewhere, anywhere, for an attentive ear.

To trim time solely to see more patients per day is to develop in the direction of greater mechanical efficiency and lesser diagnostic proficiency and the net result is that patient satisfaction shrinks as time spent is reduced.—W. S. Reveno, ℞ Time, q. s., *Detroit Medical News,* March 17, 1952.

# COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

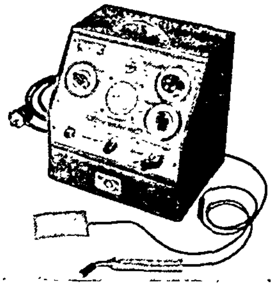
*The Council on Physical Medicine and Rehabilitation has authorized publication of the following reports.*

Ralph E. De Forest, M.D., *Secretary.*

## SANBORN ELECTROPHRENIC RESPIRATOR ACCEPTED

Manufacturer: Sanborn Company, 39 Osborn St., Cambridge 39, Mass.

The Sanborn Electrophrenic Respirator is a generator of electric currents designed to stimulate the phrenic nerves and thus induce contractions of the diaphragm in apneic patients. It operates by connection with a source of 60-cycle alternating current at 115 volts. It is provided with a dispersive electrode which is applied to the patient's back and an active electrode which must be applied with pressure over the phrenic nerve in the neck. The electrical apparatus is housed in a portable case weighing 5.5 kg. (12 lb.) and measuring 25 by 24 by 20 cm. (10 by 9½ by 8 in.). Packed for shipping it measures 30.5 by 38 by 38 cm. (12 by 15 by 15 in.) and weighs 6.8 kg. (15 lb.). The foreign shipping weight is 15.9 kg.



Sanborn Electrophrenic Respirator

Evidence from sources acceptable to the Council indicated that even submaximal stimulation of one phrenic nerve by this device could provide adequate pulmonary ventilation, and that in the hands of properly trained persons under the supervision of a physician, especially under hospital conditions, the device was a means of supplying artificial respiration. Although the Council recognized the existence of certain difficulties in application of the method, the apparatus itself was found to be technically sound.

The Council on Physical Medicine and Rehabilitation voted to include the Sanborn Electrophrenic Respirator in its list of accepted devices with the express understanding that it should not be used for first aid by lay groups (such as fire departments) nor for the prolonged care of apneic patients, but that it is a satisfactory means of resuscitation when used under the direct supervision of a physician.

## HEALTH RESORT FACILITIES OF WHITE SULPHUR COMPANY OF SHARON SPRINGS ACCEPTED

Operating Agency: White Sulphur Company of Sharon Springs, N. Y., Inc., Sharon Springs, N. Y.

The White Sulphur Company of Sharon Springs, N. Y., Inc., operates an extensive system of bathing establishments in Schoharie County. The distinctive natural resources is a mineral water containing a relatively high percentage of hydrogen sulfide. The management considers this institution essentially as a bathing establishment, there being no hospital connected with it. There is no laboratory and no roentgen ray department, and the physical therapy includes primarily baths, Scotch douches, and massages. Recreational facilities are offered both by the institution itself and by the community in cooperation with the institution.

The Council obtained evidence that the medical supervision was adequate and that the baths were not being exploited by cultists. Most of the patrons come without any desire for medical attention and without any expectation that the baths will give anything more than an enhanced feeling of well-being. The waters are not being promoted with therapeutic claims. The Council on Physical Medicine and Rehabilitation voted to include the Health Resort Facilities of the White Sulphur Company of Sharon Springs, N. Y., Inc., in its list of accepted health resorts.

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## RADIOGRAPHY WITH RADIOACTIVE ISOTOPES

Although the influence of nuclear physics on diagnostic radiology to date has been comparatively slight, there are a number of interesting possibilities in this respect. Some of these are discussed in a recent article by Mayneord [1] who had suggested that it might be possible to use a strong radioactive source placed inside the body as a radiographic focus so that more satisfactory views from unconventional angles might be obtained. In such instances detail is often obscured by superimposed structures with standard radiographic techniques.

It has been widely assumed that the gamma rays emitted from an atomic nucleus are very penetrating and thus would not provide the contrast necessary in human radiography. Actually, a number of radioactive substances emit gamma rays of low average energy that are within the diagnostic range. Many of these radioactive substances, however, are not adaptable to diagnostic radiography. They may emit other gamma rays of higher penetration or beta rays of high energy. Other factors precluding their use may be a short life or lack of availability in sufficient quantity.

Mayneord chose thulium 170, one of several more suitable sources of gamma rays with low energy, to study its possible applications in medicine. Thulium 170 emits gamma rays having an average energy the equivalent of 0.084 mev. and also emits beta rays. The beta particles disintegrate, so that the radiation coming from thulium 170 consists of a mixture of gamma rays of 0.084 mev., characteristic x-rays of ytterbium with energies in the region of 0.050 mev., and a small fraction of penetrating rays. Thulium 170 is produced by placing thulium, a rare earth of atomic weight 169 in the pile and irradiating with slow neutrons. Thulium picks up a neutron to form thulium 170. The high cost of thulium is offset by the advantages of a source with a virtually infinite life, since it can be reactivated in the pile. The material is prepared as small flat disks, which are then irradiated.

For preliminary experiments a device was used consisting of a sphere of "perspex" plastic 1 cm. in diameter at the center of which lies a small radiation source on the end of a rod. The "perspex" sphere cuts down the formation of secondary penetrating x-rays, which must be avoided because they give a high dosage to tissues near the source and cause a loss of contrast in the roentgenograms. Thulium 170 as used in these experiments is a feeble radioactive source, and the exposures have been long, e. g., 10 or 12 hours for a source-film distance of 12 cm., although screens reduce the exposure to one hour. Roentgenograms of limited areas have been taken with exposures of only five minutes.

The first experiments were done with a dried skull. Excellent pictures of the teeth were obtained. The gaps between the teeth were clearly shown, since the rays fall orthogonally to the mandible. A number of teeth may be included in a single exposure, without obscuring of the view by the opposite mandible and with only minimal superimposition by the adjacent teeth. Photographs of parts of limbs were also obtained with the use of short focal distances.

The use of radioactive isotopes appears unlikely to compete seriously with standard radiographic techniques, because large amounts of the isotope are required; however, the advantages of such a radioactive source are independence from sources of electricity, avoidance of complex equipment, and compactness. Also, sources of greater strength and higher concentration should be available in the future from piles of high neutron flux.

Another possible use for this kind of low energy radiator is the construction of a device consisting of a Geiger counter with an arm attached holding a small source of a radioactive isotope. In this way a probing beam of radiation is obtained that may be used in localizing foreign bodies and in attempts to outline body organs, based on differential absorption of the radiation. By this method metallic foreign bodies 1 to 2 mm. in diameter were located in a wax phantom.

Preliminary observations suggest that if sources of sufficient strength can be obtained radioactive isotopes emitting gamma rays of low energy will be useful in diagnostic radiology.

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## THE FUTURE OF OTOLARYNGOLOGY

For a number of years otolaryngology has been referred to as a shrinking surgical specialty, subject to encroachment, modification, and erosion from various sources. During the past decade chemotherapy and the antibiotics have convincingly reduced both the incidence and the need for surgical intervention in such diseases as mastoiditis, otogenic and rhinogenic intracranial complications, and infections of the neck. Acute surgical mastoiditis, for example, is so unusual today that many teaching institutions find it difficult to train novitiate otolaryngologists in the technique of a simple mastoid operation.

The conventional field of otolaryngology no longer exists as the uncontested domain of the otolaryngologist.

It is common knowledge that more tonsillectomies are done by general surgeons, physicians, and pediatricians than by otolaryngologists. A questionnaire sent by Lierle[1] to 574 general practitioners in Iowa indicated that from 1½% to 80% of their work was in the field of otolaryngology, with an average of approximately 22% of all patients seen during the months September to June. The development of thoracic surgery has restricted the otolaryngological field still further, especially since the thoracic surgeon has found it necessary to include the bronchoscope among his diagnostic and therapeutic tools. Add to this the competition supplied by the allergist, the plastic surgeon, the faciomaxillary surgeon, the roentgenologist, and the psychiatrist, and the dilemma of the present day otolaryngologist becomes fairly clear.

In 1948 Richards [2] summarized the results of a questionnaire sent to 500 members of the American Academy of Ophthalmology and Otolaryngology, the majority of whom lived in smaller cities and towns of uniform geographical distribution. To these men the future looked dim. Eighty-six per cent of the members stated they believed the field of otolaryngology to be shrinking, and nearly all of them attributed the decline to chemotherapy. In addition, reasons for the decline, either alone or as part of a number of contributing factors, were attributed to the general practitioner in 66% of the replies, to the thoracic surgeon in 50%, to the allergist in 66%, to the radiologist in 33%, and to the plastic surgeon in 66%.

In the face of these gloomy forecasts, some otolaryngologists have protested and declared that on the contrary the prospects for otolaryngology were never brighter.[3] In this connection, Richards asserts that there are two major subdivisions of the otolaryngological specialty, one the science, the other the practice. Ideally, science and practice should be combined as an integrated unit; practically they are often widely separated. Considering the purely scientific aspects of the problem, it is generally agreed that the future of otolaryngological research, investigation, and hence the potentialities for new discoveries, is limitless. Most experimentation can be carried on only in teaching institutions and hospital laboratories furnished with adequate equipment, manned by investigators with exceptional interest and skill, and supported by generous endowments and grants-in-aid. Given these factors, the future of scientific otolaryngology seems assured. But for the physician who enters the practice of otolaryngology as a principal, if not sole, means of livelihood, the constrictions and encroachments on the specialty are matters of immediate import.

To meet the challenge, various measures have been suggested. It has been proposed that the future otolaryngologist expand the sphere of his activities to include not only conventional diseases of the ear, nose, and throat, but surgery of the neck and thyroid gland, reconstructive surgery of the head and neck, bronchoesophagology, allergy, audiology, and physical medicine.[4] More otolaryngologists are urged to become qualified to deal with surgical treatment of cancer of the larynx.[5] In some quarters, it is maintained that the well-rounded, adequately prepared otolaryngologist should be a composite paragon, trained as an anatomist, a physiologist, a biochemist, an audiophysicist, an allergist, internist, radiologist, surgeon, and even psychiatrist. At present, declares Richards, this is hardly a feasible solution to the otolaryngologist's dilemma. The training required would entail so prolonged a preparation as to be far beyond the time and money available to most physicians.

Whether, as has been proclaimed, "the future of otolaryngology was never brighter than at present,"[3] or "otolaryngology may be in a dilemma but the future is not dark,"[1] or "the good old days of otolaryngology are gone forever," it is axiomatic that only in a climate of continuously free and open discussion can a valid, objective assessment of the future of otolaryngology be made. Otolaryngologists have much to gain by thrashing out the problem calmly and deliberately rather than by ignoring it.

## THE LARGEST MEDICAL EXHIBIT

Visitors to the annual session of the American Medical Association in Chicago, June 9-13, will be privileged to see what is believed to be the world's largest and most comprehensive medical exhibit. In addition to 300 scientific exhibits portraying recent advances in clinical and laboratory medicine, there will be 375 technical exhibits displaying new drugs, instruments, books, and services of interest to physicians. The regular scientific exhibits, covering almost every branch of medicine, will be supplemented by special demonstrations on resuscitation, fresh pathological specimens, and treatment of fractures, as well as by exhibit symposiums on diabetes, overweight, and cardiovascular disease. The technical exhibits will be staffed by qualified personnel who will discuss the diagnostic and therapeutic uses of the products demonstrated. Together the scientific and technical exhibits will occupy nearly a quarter of a million square feet of floor space on Chicago's Navy Pier and will have a frontage of more than three miles. Thousands of physicians and other medical personnel and guests from all parts of the country are expected to visit these exhibits. Many have already made hotel reservations. For those who have not yet done so, an application blank is provided on page 75 of the advertising section in this issue of THE JOURNAL. All physicians planning to attend are urged to make their reservations at the earliest possible date to avoid last-minute disappointment.

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# THE PRESIDENT'S PAGE

## A MONTHLY MESSAGE

The economics of medicine, which for generations involved little more than a patient's payment of money or goods to the physician in return for medical service, has become a complex science. Development of hospitals, group practice, specialization, ancillary services, new drugs and devices, sickness insurance, and modern transportation have all contributed to its complexity. The modern practitioner not only must be a student of medicine but must be grounded in economics and sociology as well.

To aid physicians in understanding the socioeconomic side of medicine, your A. M. A. in 1931 created a Bureau of Medical Economic Research. Since 1946 it has been under the able direction of Frank G. Dickinson, Ph. D., who taught economics at the University of Illinois for 25 years. Its purpose is to study all phases of economics pertaining to the practice of medicine and report its findings to the profession. It operates in an atmosphere of academic freedom. The A. M. A. wants unbiased facts. The Bureau presents these and attempts to throw them against the screen of the total economic picture so that they appear in true perspective. Any action taken by the A. M. A. based on these findings is the decision of the House of Delegates, which is the policy making body. In the course of uncovering medical economic data, the Bureau has repeatedly exploded statistical myths. Some of these had long been favorites of the advocates of state medicine for "illustrating" the shortcomings of our free system of medical care. In this respect the Bureau has provided us with powerful ammunition in our battle against socialization.

An outstanding example may be found in the study of the supply and distribution of physicians in the United States. The commonest yardstick in use up until a few years ago was the number of physicians in relation to population by counties. Voices were frequently raised to lament the fact that many counties had few or no physicians. To our economists this was absurd. It ignored the fact that some counties had only a handful of residents. It further ignored the obvious fact that persons cross county lines to seek medical care just as they do to buy groceries. A "doctorless" county might have three or four easily accessible, well-staffed hospitals located just inside the neighboring counties.

In order to ascertain the facts about physican supply and dis-ibution, the Bureau has divided the country into 757 medical ervice areas based on knowledge concerning where persons go for their medical care. These areas roughly correspond to the trading areas used by students of consumer buying habits. By determining the number of physicians in relation to population in these areas, we can see where shortages and surpluses actually occur. This study, which will be completed in the fall after more than three years' work, will be invaluable to placement services in advising young physicians where to settle. Communities in areas shown to be short of physicians can be encouraged to take steps to attract physicians. Research already completed reveals, however, that the U. S. has an amazingly adequate distribution of physicians. It has laid forever the ghost of many so-called doctorless counties.

Other studies of the Bureau of Medical Economic Research that are of great interest to the profession are the recent survey of physicians' incomes, conducted jointly with the U. S. Department of Commerce, and a study just completed of health services in universities. The former helped to "scotch" rumors that all doctors are in the upper income brackets. It revealed that physicians engaged in civilian practice in 1949 had an average income of $11,058 before taxes. In the 20 year period since 1929 the average income of physicians had more than doubled, but the increase was practically identical with that for all earners in the general population over the same period.

The recent survey of university health services discloses that most schools provide such service for students. Large schools employ full-time physicians. Faculty members and other employees, however, are generally regarded as citizens of the community, and, as such, they obtain medical care from private physicians.

Group practice has been of continuing interest to the Bureau. It has just published a bibliography on the subject, Bulletin 85, which lists all pertinent articles written during the last 20 years. In addition, it has in preparation a discussion of the number of group practices that were dissolved during the 1940's and the reason for the termination.

Maternal and infant mortality, life expectancy, leading causes of death, and other statistical data that point up medicine's success or failure in its battle against disease also concern the Bureau. It uncovered the fact that accidents are the leading cause of death when measured in terms of working years lost. This information has been used widely by the National Safety Council.

One of the most important functions of the Bureau is its continuing inquiry into the cost of medical care. This it relates to fluctuations in the cost of living and the prices of other commodities that the wage-earner must purchase.

How does the Bureau uncover its facts? It carefully analyzes and makes use of data developed by agencies of the federal and state governments and by private research organizations. Original surveys are conducted by mailed questionnaires. The Bureau maintains the only IBM installation at A. M. A. headquarters, and it is used primarily for such research projects. Eventually, punch cards containing a wide variety of statistical data on all physicians will be available for these studies.

Through its statistical experts and its IBM installation, the Bureau performs many valuable services for other departments of the Association. It designed and conducted a national survey of blood banks for the A. M. A. committee working in that field. It compiles the statistics for the annual hospital and internship and residency numbers of The Journal. This is done to assist the Council on Medical Education and Hospitals. The Bureau has aided the Public Relations Department in the compilation of results of public opinion surveys.

While the Bureau publications are, of necessity, rather heavy reading, they contain enlightening facts and exciting discoveries for the student of medical economics. A catalog may be obtained by writing to the Bureau of Medical Economic Research. I commend these bulletins most heartily to every physician, but especially to those who guide medicine's progress in socioeconomic fields. For the leaders of state and county medical associations, for physicians active in health insurance programs, and for the increasing number of teachers of economics in our medical schools, these Bureau bulletins are extremely valuable.

There are those who would steer medicine's ship into the treacherous waters of a socialist economy. The rocks of regimentation and the sand bars of impractical "welfare" schemes are on all sides. It is not enough that we have a steady hand on the rudder. We must also operate on the basis of fact and clear economic understanding in order that the course of medicine in a changing world will endanger neither its quality nor its freedom.

John W. Cline, M.D., San Francisco.

# ORGANIZATION SECTION

## FEDERAL MEDICAL LEGISLATION

### *Deductions from Income for Retirement*

Representative Coudert of New York introduced H. R. 7426 to provide that certain amounts expended by individuals for the purchase of non-interest-bearing United States bonds may be deducted in computing net income. This bill would enable taxpayers to lay aside savings during more productive years for disability and retirement eventualities. Taxpayers would be permitted to purchase United States bonds up to 10% of their adjusted gross income. Bonds would be non-interest-bearing, have no fixed maturity, be payable in full on demand, and would be issued only to individuals. The proceeds received by the U. S. from the sale of these special bonds would be used to retire outstanding, high interest-bearing bonds. A deduction from income would be permitted during the years in which bonds were purchased, but the proceeds would be taxable when sold by the individual on the same basis as any other income. If the individual should die, proceeds would be included in his gross estate. Representative Coudert previously introduced in this Congress two other bills to accomplish the same purposes, H. R. 3456 and H. R. 5847. The first bill provided for postponement of federal income taxes for a limited portion of income, which could be contributed to a restricted retirement fund. The second bill would allow income tax deduction for premiums paid on life insurance and annuity contracts.

### Air Pollution

H. Res. 593, introduced by Representative Dollinger of New York, proposes the creation of a select committee composed of seven members of the House of Representatives to conduct a full and complete investigation and study of air pollution in the United States. The committee would be expected to suggest effective methods of eliminating or controlling air pollution. None of six similar measures, previously reported, called for the appointment of a special committee made up of the members of Congress.

## STATE MEDICAL LEGISLATION

### Arizona

**Bill Enacted.**—S.C.R. 11, was adopted March 20, 1952. It provides for submission to the people of a measure providing for the creation by the legislature of a **department of public health or welfare** to consist of the commissioner of public health and welfare, the board of public health and welfare, the divisions of the department, and such other boards, councils and institutions or agencies as the legislature may deem necessary or advisable.

### California

**Bills Enacted.**—S.R. 34, was adopted April 1, 1952. It provides for the creation of an Interim Commission to ascertain, study and analyze all facts relating to **all state hospitals and veterans' institutions** whatever their nature.

### Michigan

**Bills Enacted.**—H. 202, has become Public Act No. 93 of the Acts of 1952. It relates to the **annual registration required of osteopathic licentiates.** At the time of such annual registration, the applicant must show that he has attended during the prior year a one-day educational course or program of at least eight-hour duration approved by the board on subjects related to the practice of osteopathy and authorizes the board to accept as fulfilling such requirements attendance during at least one day of the two-day educational program conducted by the Michigan Osteopathy Association. H. 399, has become Public Act No. 83 of the Acts of 1952. It makes it a duty of the superintendent of public instruction to promote in the public schools of the state in normal colleges and universities in the state and among adult groups scientific instructions as to the **physical, psychological and sociological effects of alcohol** and the benefits of temperance.

### Mississippi

**Bill Introduced.**—S. 304, proposes the creation in the office of the Attorney General of the **Mississippi Bureau of Investigation** which shall be provided with laboratory facilities for the analysis of evidence of crime, including the determination of presence, quantity and character of poisons, the character of blood stains, microscopic and other examination material associated with the commitment of crime, examination and analysis of projectiles of ballistic imprints and records which might lead to the determination or identification of criminals, the examination for and of finger prints, and other evidence leading to the identification, apprehension and conviction of criminals. S. 569, relating to **grants in aid for the construction of hospitals** and related institutions specifically included non-share corporations or foundations organized for medical and surgical purposes or for establishing, maintaining or operating clinical, pathological, medical or surgical research laboratories or hospitals, whose charter prohibit the reversion of any property of the corporation or foundation to any members, trustee, officer or other individual. S. 642, proposes an appropriation to the Board of Trustees of state institutions of higher learning for the purpose of paying for **scholarships for advanced studies in nursing.** S. 646, to amend the law relating to **privilege taxes upon businesses operating stores wherein eyes are examined,** proposes that nothing in the proposal shall be so construed as to prevent any person, firm or corporation from owning or operating a store or business establishment wherein eyes are examined or glasses fitted, provided that only a duly licensed optometrist shall examine the eyes of any person for the purpose of fitting the glasses.

### New York

**Bills Enacted.**—A. 2636, has become Ch. 632 of the Laws of 1952. It amends the public health law by requiring physicians to report to the state department of health promptly the name and if possible the address of any person under treatment if it appears that such person is an **habitual user of any narcotic drug.** S. 2396, has become Ch. 530 of the Laws of 1952. It amends the education law by providing that no person shall falsely personate a licensed optometrist of a like or different name nor buy, sell or fraudulently obtain a license to practice optometry and it provides further that the **full name of the practitioner of optometry** must be displayed at the place where he practices. S. 2445, has become Ch. 557 of the Laws of 1952. It amends the education law by extending to July 1, 1953, certain licensing requirements applicable to **residents and interns** of state institutions. S. 2594, has become Ch. 624 of the Laws of 1952. It amends the public health law relating to **poliomyelitis** by authorizing local boards of health, after approval by the state commissioner of health, to provide at the remedial stages of the disease suitable surgical medical or therapeutic or hospital care.

### Rhode Island

**Bill Introduced.**—S. 286, resolved that the general assembly requests the Governor to take action by executive order or otherwise to require the **state director of health,** and those chief medical assistants who are now alleged to be dividing their time between private practice of medicine and their state jobs and duties, to devote their entire time to the responsibilities of their official positions in the state department of health.

### Virginia

**Bills Enacted.**—H. 225, has become Ch. 651 of the Laws of 1952. It provides regulations for the granting of **annual nursing scholarships.** H. 426, has become Ch. 525 of the Laws of 1952. It makes it unlawful for any employer to require any employee or applicant for employment to pay the **cost of a medical examination** or the cost of furnishing any records required by the employer as a condition of employment. H. 722, has become Ch. 698 of the Laws of 1952. It amends the **medical practice act** relating to persons applying to take the examination for medical licensure by providing that if the applicant shows that the medical school from which he graduated is approved by the Council on Medical Education and Hospitals and that other members of his graduating class from such medical school have been allowed to take the examination for medical licensure while the applicant was serving in the armed forces and if he further agrees that if he passes the examination he will begin and continue for at least five years thereafter **the practice of medicine in some rural county in the state,** then he shall be entitled to take the examination. The law further provides that if at any time he discontinues such practice within the five year period the licensure shall thereupon be revoked. S. 278, has become Ch. 690 of the Laws of 1952. It amends the medical practice act by authorizing persons who are **interning or taking residency training** in the state to extend the three-year period of training for two additional years before being required to obtain a license to practice medicine. S. 385, has become Ch. 641 of the Laws of 1952. It provides regulations for the granting of twenty annual **medical scholarships** to be awarded to Virginia students attending the Meharry Medical College at Nashville, Tennessee.

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The summary of federal legislation was prepared by the Washington Office of the American Medical Association and the summary of state legislation by the Bureau of Legal Medicine and Legislation.

## TELECAST, MAY 4, FROM ATOMIC MEDICAL LABORATORY

Experiments with new radioactive isotopes of potential significance to the further advancement of medicine will be shown Sunday, May 4, during a nationwide telecast from Brookhaven National Laboratories, an atomic energy station at Upton, Long Island, N. Y.

This will be the first time that mobile television cameras have been allowed in an atomic energy installation. The telecast, scheduled for 1:30-2:00 p. m. (E.D.S.T.) and sponsored by the American Medical Association in cooperation with the National Broadcasting Company, will originate from the hospital and medical division of the laboratory. The viewing public will be permitted to see the interior of the laboratory where radioactive isotopes are separated and processed and will witness some of the experiments in progress.

Scientific authorities will appear on the program to demonstrate the use of atomic medicine in practical application to patients and to conduct scientific experiments in medical and basic research. They include Dr. Lee E. Farr, chairman of the medical department at Brookhaven; Dr. Donald D. Van Slyke, research director of Eli Lilly Foundation and guest scientist at Brookhaven; Dr. F. Marott Sinex, a member of the staff at Brookhaven, and L. G. Stang, leader of the laboratory section where radioactive isotopes are separated and processed. The program will be narrated by Dr. W. W. Bauer, Chicago, Director of the Bureau of Health Education of the A. M. A., and Ben Grauer, New York, well-known announcer.

The medical department of Brookhaven has under its jurisdiction a 36-bed research hospital, the first to be developed solely for the study of atomic energy medicine. Patients, who come from all parts of the United States for study and treatment, are admitted only after referral by their physicians.

## CIVIL DEFENSE DUTIES ASSIGNED TO DOCTORS

The King County Medical Society announced March 19 that it has completed the task of assigning each of its active member physicians (about 850) to specific Civil Defense duties in the event of any major emergency. The job has taken several months.

Cooperating with the City's Civil Defense Authorities the Medical Society early in 1951 took the responsibility of making certain that all first-aid stations, provisional hospitals, and regular hospitals in Seattle's civil defense planning would be properly manned by physicians during an atomic or other kind of city-wide disaster. During the next two weeks each physician actively practicing medicine and living within the confines of the city was notified just what his task would be and where he was to go during a civil defense emergency.

Zoning of the rest of King County, outside Seattle, and the designation of first-aid stations was completed by the Civil Defense Authorities by the middle of April, and assignments for King County physicians living beyond Seattle's city limits was made at that time.

The King County Medical Society also announced the formation of a standing Civil Defense Committee, with Dr. Bruce Zimmerman as chairman. The creation of such a committee is assurance to the citizens of Seattle that this city's Medical Civil Defense will be kept alive and up-to-date. Other members of the committee are Drs. Wallace D. Hunt, Raymond Zech, Vernon O. Lundmark, Simeon Cantril, John Lecocq, William Y. Baker, and Wayne Sims. Dr. John Culp will represent the King County Medical Society Board of Trustees on the committee.

Certain schools where first-aid stations are being set up were designated and certain other schools were designated to be used as provisional hospitals.

## COMMISSION ON CHRONIC ILLNESS

The national Commission on Chronic Illness, under the direction of Dr. Dean W. Roberts, will survey 13,000 persons in 4,000 families in Baltimore, Md., in a study of chronic disease and the needs of the chronically ill. Dr. Roberts will assume his new duties as staff director of the commission on July 1, and the commission's office headquarters will be moved from Chicago to Baltimore at that time.

Dr. Roberts is on the faculty of Johns Hopkins University as a lecturer in public health administration and also gives annual lectures at Harvard, Yale, and the University of Maryland. Last summer, as consultant to the World Health Organization, Dr. Roberts conducted a survey of health conditions in northeast Brazil.

The Baltimore study of chronic disease among city dwellers is a companion to a previously announced study among the rural population in Hunterdon County, New Jersey. Results of medical studies of persons in the test groups found to be chronically ill will be evaluated to estimate their needs for medical care and related services. The studies are expected to reveal significant information on the extent of chronic disease present in both the urban and the rural population.

Dr. Roberts and the commission staff will begin in Baltimore a series of studies, planned to cover several years, of medical services and facilities needed by the chronically ill.

The commission was founded in 1949 by the American Hospital Association, American Medical Association, American Public Health Association, and the American Public Welfare Association.

The AMA has pledged continued financial support to the Commission on Chronic Illness in the amount of $80,000, to be paid over a four year period. This year's installment of $20,000 was recently turned over to the commission. A $300,000 budget set by the commission for the coming four year period has been met by 12 contributing organizations.

## COMMITTEE ON MENTAL HEALTH

The first meeting of the Committee on Mental Health of the Board of Trustees (previously designated the Committee on Nervous and Mental Diseases), composed of Drs. Walter H. Baer, Leo Bartemeier, Hugh T. Carmichael, Francis M. Forster, M. Ralph Kaufman, Maurice Levine, and Lauren H. Smith, met at the headquarters of the American Medical Association on March 27, all members of the Committee being present. The following officers were elected: Dr. Leo Bartemeier, Chairman, and Dr. Lauren H. Smith, Vice Chairman. The Chairman, Vice Chairman, and Dr. Walter H. Baer were selected to serve as the executive committee of the Committee on Mental Health.

Many problems in the fields of psychiatry and neurology with which the Committee may concern itself were discussed. Plans were formulated for other meetings in the near future, and a report on actions that may be taken at these sessions will appear in subsequent issues of THE JOURNAL.

## COUNCIL ON FOODS AND NUTRITION

Dr. James S. McLester, former President of the American Medical Association and professor emeritus of medicine at the University of Alabama, has retired as chairman of the American Medical Association's Council on Foods and Nutrition after 15 years of meritorious service. Dr. Philip C. Jeans, professor of pediatrics at the University of Iowa School of Medicine, is his elected successor. A portrait of Dr. McLester, presented to the Board of Trustees of the American Medical Association by the Council in Dr. McLester's honor, will be hung at the Association headquarters in Chicago.

# MEDICAL NEWS

## CALIFORNIA

**Personals.**—Dr. Hall G. Holder has resigned as chief of surgery at the San Diego County Hospital. He had been on the surgical staff since 1927.——Dr. Richard W. Lippman, research associate, Institute for Medical Research, Cedars of Lebanon Hospital, Los Angeles, has been elected chairman of the Southern California Section of the Society for Experimental Biology and Medicine for the academic year 1952-53.

**Congenital Heart Disease.**—The state department of public health has been allotted $36,201 by the United States Children's Bureau to administer a regional program for the benefit of children with congenital heart disease. California will now be able to receive children from Arizona, Idaho, Nevada, Alaska, and Hawaii who are referred to the department by various children's agencies. The handicapped children will, in turn, be referred for diagnosis and treatment to four hospitals and to practicing specialists. Hospitals participating in this program are Mount Zion, Stanford University and University of California in San Francisco, and the Children's Hospital in Los Angeles.

## DISTRICT OF COLUMBIA

**Dr. Claude Beck's Lecture.**—Dr. Claude S. Beck, professor of neurosurgery, Western Reserve University School of Medicine, Cleveland, will deliver the annual Phi Delta Epsilon Lecture, sponsored by Psi Chapter, at the George Washington University School of Medicine. Dr. Beck will address the student body and members of the faculty in hall A of the medical school building at 12 noon, May 3 on "Operation for Coronary Artery Disease."

## FLORIDA

**Postgraduate Seminar.**—Mount Sinai Hospital, Miami Beach, will hold its annual seminar May 22-24. "Recent Advances in Diagnosis and Treatment" will be discussed by Drs. James H. Means and William Dameshek, Boston; Drs. Delbert M. Bergenstal, Joseph B. Kirsner, and Rachmiel Levine, Chicago; Dr. Daniel C. Darrow, New Haven; Dr. J. William Hinton, New York, and Dr. Robert Elman, St. Louis. The registration fee of $20 will be omitted for interns and residents. The banquet fee will be $7.50.

## ILLINOIS

**Personal.**—Dr. William M. Hanrahan, former director of the Brevard-Osceola Bi-County Health Department in Florida, has been appointed director of the Champaign-Urbana Public Health District.

**Illinois Society for Medical Research.**—To strengthen its program of public education concerning the use of animals in medical research and teaching, the Illinois Society for Medical Research is undertaking a campaign to increase its membership and financial support. Dr. Anton J. Carlson, Chicago, president of the society, states that solicitation of members will be based on three groups: individuals; associations and organizations, and institutions and businesses. The total sum expected to be raised for the current year is $10,000.

### Chicago

**Society News.**—The Chicago Gynecological Society held a joint meeting with the St. Louis Gynecological Society and the Kansas City Obstetrical and Gynecological Society April 18. Out-of-state speakers were Drs. George J. L. Wulff and Alva C. Trueblood of St. Louis, who spoke on "Breech Delivery," and Dr. Kenneth E. Cox, Kansas City, Mo., who discussed "The Role of Colpoclysis in Vaginal Fistulae."

**Lectures on Medical History.**—The medical school of Northwestern University is conducting a series of free lectures on the history of medicine from 5 to 6 on Tuesday evenings at Thorne Hall on the Chicago campus. Remaining lectures are as follows:

April 30, Loyal Davis, chairman of the department of surgery, Stormy Petrel of Surgery (John B. Murphy).
May 7, Vincent J. O'Conor, chairman of the department of urology, Development of Urinary Antiseptics.
May 14, Abraham Levinson, professor of pediatrics, History of Pediatrics.
May 21, William J. Ford, instructor in medicine, John Hunter, the Great English Anatomist of the Late 18th Century.
May 28, William B. Wartman, professor of pathology, History of Tumors.
June 4, Herbert Rattner, professor of dermatology, Ordinary Baldness.

**Chicago Medical School Grants.**—At a recent fund raising dinner given by Dr. Sydney R. Bazell, assistant in the department of dermatology and syphilology, $22,000 was contributed for the benefit of the Chicago Medical School. On May 3 the Faculty Wives Association is sponsoring a concert at Orchestra Hall for the benefit of the school, at which Marian Anderson will be the soloist.

Recent research grants and renewals of former grants for studies of hypertension and cancer total $53,976. Dr. Hans Elias, assistant professor of the department of anatomy, receives $4,320 from the National Heart Institute for "study of the three dimensional structure of the human adrenal cortex in normal and hypertensive persons." Dr. Israel Davidsohn, professor and chairman of the department of pathology and pathologist and director of laboratories at Mount Sinai Hospital, received a renewal of $13,068 from the U. S. Public Health Service for continuation of studies of "natural and immune antibodies in inbred mouse strains with low and high tumor incidence." He has also received a grant of $6,598 for research in hemolytic anemia. Dr. Philippe Shubik, coordinator of oncology, has received a renewal of $25,000 from the National Cancer Institute to be used for cancer teaching and $5,000 as a second payment of a grant from the same source for "study of successive stages of carcinogenesis."

## MASSACHUSETTS

**Myerson Memorial Laboratory.**—This laboratory at Boston State Hospital was dedicated Jan. 3 to the memory of the late Dr. Abraham Myerson, who for 36 years served on the medical staff and was director of research for 26 years. Dr. Israel S. Wechsler, clinical professor of neurology at Columbia University, New York, reviewed Dr. Myerson's career as a clinician, teacher, and scientist; other papers were presented by the hospital staff. Dr. Jack R. Ewalt, commissioner of the state department of mental health, gave the closing address on "The Importance of Research in Psychiatry."

**Evening Lectures.**—The House Officers' Association of the Boston City Hospital announces the following programs to complete its evening lecture series for 1951-1952:

May 6, Introduction to Vector Electrocardiography, Robert P. Grant, Baltimore.
May 9, Nature of the Electrocardiographic Changes in Coronary Occlusion (illustrated by high speed motion picture film), Myron Prinzmetal, San Francisco.
May 15, Treatment of Epilepsy (with illustration by the film "Seizure"), William G. Lennox, Boston.
May 20, Respiratory and Metabolic Aspects of Acid-Base Control During Anesthesia, Emanuel M. Papper, New York.
May 27, Pathogenesis of Essential Hypertension, Ephraim Shorr, New York.
May 29, Pulmonary Air Cysts: Some Diagnostic, Functional and Therapeutic Considerations, K. Albert Harden, Washington, D. C.
June 3, Pulmonary Function Tests, Julius H. Comroe, Philadelphia.

These programs are held at 7 p. m. in the new Cheever Amphitheatre of the Dowling Building of Boston City Hospital.

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Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least three weeks before the date of meeting.

## NEBRASKA

**State Medical Meeting in Lincoln.**—The Nebraska State Medical Association will hold its annual session May 12-15 at the Hotel Cornhusker in Lincoln under the presidency of Dr. Donald B. Steenburg, Aurora. The program includes panel discussions on "Emergencies of the Newborn," "Cancer," and "Some Clinical Aspects of Abnormal Calcium and Phosphorus Metabolism," and a symposium on immunology and hematology. Out-of-state speakers include:

James M. Baty, Boston, Pyuria in Children.
Carroll Z. Berman, Boston, Radiological Aspect of the Diagnosis of Chronic Abdominal Pain in Children.
Orvar Swenson, Boston, Megacolon.
Jerome W. Conn, Ann Arbor, Present Status of ACTH and Cortisone in Clinical Practice.
Arthur C. Curtis, Ann Arbor, Contact and Occupational Dermatoses.
Reed M. Nesbit, Ann Arbor, Problems Relating to the Recognition of Hydronephrosis in Every Day Practice.
Donald A. Dukelow, Chicago, The School Health Problem in Nebraska.
Robert S. Sparkman, Dallas, Common Fallacies Concerning Gallbladder Disease.
Sol Haberman, Ph.D., Dallas, Rational Use of Antibiotics.
Joseph M. Hill, Dallas, Diagnosis and Treatment of Anemias.

At the banquet May 14 Raymond Moley, Ph.D., New York, editor of *Newsweek*, will speak on "How to Keep Our Liberty." The woman's auxiliary will meet at the same time.

## NEW JERSEY

**Personals.**—Dr. Hyman I. Goldstein, Camden, has been voted to life membership in the Philadelphia Pediatric Society, in which he has been active for nearly 40 years. Dr. Goldstein was recently appointed a delegate to the third European Congress of National Societies of Gastroenterology held in Bologna, Italy, April 20-26, and also to the third Pan-American Working Day of Gastroenterology to be held in Mexico City, May 11-17.

**State Medical Meeting in Atlantic City.**—The annual meeting of the Medical Society of New Jersey will be held at Haddon Hall, Atlantic City, May 19-21 under the presidency of Dr. Sigurd W. Johnsen, Passaic. There will be 12 section meetings. The section on surgery will present a panel discussion on cancer of the breast at 2 p. m. May 21. Participants, all of Columbia University College of Physicians and Surgeons, New York, will be Drs. Cushman D. Haagensen, associate professor of clinical surgery, Maurice Lenz, professor of clinical radiology, and Arthur Purdy Stout, professor of pathology. Section luncheon meetings will be held daily. A banquet will follow the president's reception, which will be held May 20, 6:30 p. m. The woman's auxiliary will have its annual meeting simultaneously.

## NEW YORK

**Lecture on Isotopes.**—The Council Committee on Public Health and Education of the Medical Society of the State of New York, in cooperation with the New York State Department of Health, announces a lecture to be given for the Queens County Medical Society on May 2 at 4 p. m. at Queens County Medical Society Building, 112-25 Queens Blvd., Forest Hills. Dr. Edith H. Quimby, Sc.D., associate professor of radiology, Columbia University College of Physicians and Surgeons, will speak on "Diagnostic Procedures with Radioactive Isotopes."

**Annual State Medical Meeting.**—The annual convention of the Medical Society of the State of New York will be held May 12-16 at the Hotel Statler in New York. Television Teaching Day will be devoted to television in color showing techniques of diagnostic and therapeutic procedures. These presentations will be made in cooperation with New York University College of Medicine, New York University Post-Graduate Medical School, and Bellevue Hospital, at which the demonstrations will originate. The morning program will be on biopsy of sternal bone marrow, biopsy of liver, gastroscopy, venous pressure and circulation times, maximum breathing capacity, division of lung air and other tests of respiratory function, lumbar sympathetic block, and technics of administering fluids and blood to infants. The afternoon program will be devoted to a demonstration of auscultation of the heart, making use of the latest electronic instruments, and a clinicopathological conference. The color telecasts will continue through the convention. There will be scientific section meetings, and sessions on the history of medicine and public relations. At a symposium on neonatal mortality May 14 at 2:30 p. m. the following papers will be presented:

Edward R. Schlesinger, Albany, Fetal and Neonatal Mortality.
Alfred J. Vignec, New York, Recent Trends in Premature Care.
Sidney Farber, Boston, Some Aspects of Neonatal Pathology.
Louis M. Hellman, Brooklyn, Newer Concepts in the Use of Analgesics and Anesthetics for Labor and Delivery.

A banquet will be held in the Penn Top on May 14 at 7 p. m. The woman's auxiliary will meet at the Statler May 11-15.

### New York City

**The Freud Lecture.**—Under the sponsorship of the New York Psychoanalytic Society and Institute, the Freud lecture, "Psychoanalysis and the Study of Creative Imagination," will be given by W. Ernst Kris, Ph.D., May 6 at 8:30 p. m. in Hosack Hall, The New York Academy of Medicine, 2 E. 103rd St.

**Gift for Student Residence at Cornell.**—The Olin Foundation has given $2,549,000 to provide a student residence for Cornell University Medical College. Preliminary plans call for a 12-story building with 250 rooms for students and 25 for visiting scientists, alumni, and parents. The building will also include offices, meeting rooms, lounges, snack bar, and athletic facilities.

**Psychiatrists Wanted.**—The Municipal Civil Service Commission of the City of New York is reopening the application period for psychiatrist, grade 4. Applications will be issued April 15-30. Persons who filed in January need not file application again but may make amendments or additions thereto. There are 26 vacancies in the department of hospitals at yearly salaries of $6,650, including an annual cost of living adjustment of $250. Information may be obtained from the office at 299 Broadway, New York 7.

## PENNSYLVANIA

**General Practice Meeting.**—The Pennsylvania Academy of General Practice will hold its convention in Bedford Springs May 9-11. The program being presented on Saturday includes the following visiting speakers:

Frank N. Wilson, Ann Arbor, Subject to be announced.
Philip Thorek, Chicago, The Acute Abdomen.
Walter J. Reich, Chicago, Office Gynecology.

The program will close with a panel discussion on cerebral vascular accidents.

**Meeting on Tumors.**—The Wainwright Tumor Clinic Association of Pennsylvania under the direction of the commission on cancer of the Medical Society of the State of Pennsylvania will hold its annual meeting in the Masonic Building in Allentown May 14. Visiting speakers and their subjects include:

William A. Cooper, New York, The Gastric Cancer Problem.
Harry M. Weber, Rochester, Minn., Roentgenologic Diagnosis of Cancer of the Upper Gastrointestinal Tract.
Charles S. Cameron Jr., New York, Observations and Suggestions in the Early Diagnosis of Cancer.

The luncheon speaker will be Dr. Harold L. Foss, president-elect of the American College of Surgeons, who will speak on "What the American College of Surgeons Is Doing About Cancer."

**Annual Academy Meeting.**—The Pennsylvania Academy of Ophthalmology and Otolaryngology will hold its annual meeting May 8-11 at Galen Hall Hotel, Wernersville (Reading). Guest speakers will include Drs. M. Royden C. Astley and Edmund B. Spaeth, Philadelphia; Ben H. Senturia and James B. Costen, St. Louis; Olav E. Hallberg, Rochester; Herman Elwyn, New York; Lawrence R. Boies, Minneapolis; Alson E. Braley and Dean M. Lierle, Iowa City; William C. Owens, Baltimore, and Paul A. Chandler, Boston. The program will also include conferences and courses, study club presentations, motion pictures, and a golf tournament. The academy has inaugurated a state program for testing and disposition of 50,000 deafened school children.

### Philadelphia

**Hospital Affiliates with University.**—The Skin and Cancer Hospital in Philadelphia has announced that it will become affiliated formally with the Graduate School of Medicine of the University of Pennsylvania following a program of special service during the past 26 years.

**Personal.**—Dr. Chevalier L. Jackson, president of the American College of Chest Physicians, was honored by the Cuban chapter of the college during a recent visit to Cuba. Dr. Jackson, guest of honor of the III Pan-American Congress of the International Society for Otorhinolaryngology, received a certificate from the Pan-American Colombist Society for his many years of devoted service to the Latin American countries in the field of medicine.

**Appoint Director of Phipps Institute.**—Dr. Julius L. Wilson, formerly head of the chest division of the Ochsner Foundation Clinic, New Orleans, has been named director of the Henry Phipps Institute and professor of medicine at the University of Pennsylvania. Dr. Wilson has served as chairman of the health division and a member of the board of directors of the New Orleans Council of Social Agencies. He has been a member of the board of the Louisiana Tuberculosis Association since 1939 and program director of the New Orleans Tuberculosis Association since 1938.

## TEXAS

**Dr. Leake to Study Papyri.**—Chauncey D. Leake, Ph.D., of the University of Texas Medical Branch, Galveston, has been given a leave of absence for special work on old Egyptian medical papyri at the Institute for Advanced Study, Princeton, N. J. He will give a series of talks at eastern institutions on this subject during April. On April 15 he spoke at the Army Medical Library, Washington, D. C., on "Leonardo da Vinci: Scientist and Artist," commemorating the 500th anniversary of the birth of da Vinci.

**Grants for Research.**—The Caruth Foundation of Dallas has made two grants to the Southwestern Medical School of the University of Texas, Dallas, through the Southwestern Medical Foundation. A grant of $4,000 will be used for research in the department of pediatrics under the direction of Dr. James J. Quilligan, associate professor. Influenza and other related virus diseases will be studied by Dr. Quilligan and his associates. A $5,000 grant for research in the department of bacteriology, under the direction of S. Edward Sulkin, Ph.D., professor and chairman of the department of bacteriology, will be utilized for the study of mechanisms involved in the control of virus diseases in humans.

## WEST VIRGINIA

**Appoint Health Education Consultant.**—Fred J. Holter, Ph.D., of Morgantown has been named health education consultant to the state department of health. He has been a college teacher, specializing in health education since 1929 and joined the staff at West Virginia University in 1947. The appointment of Dr. Holter follows closely the recommendation of those attending the fourth annual rural health conference at Jackson's Mill last September that a consultation service on community health be established within the state. The conference was sponsored by the West Virginia State Medical Association. Dr. Holter will be available for consultant services in communities interested in organizing community health councils. Only eight communities in West Virginia now have active councils, and health officials feel that several additional councils are needed in various parts of the state.

## HAWAII

**Territorial Medical Meeting.**—The Hawaii Territorial Medical Association will hold its annual meeting in the Mabel Smyth Building, Honolulu, May 1-4 under the presidency of Dr. Harry L. Arnold Jr., Honolulu. Visiting speakers will be Dr. William Boyd, Toronto, who will speak on "Pathology of the Ground Substance of the Mesenchyme," and Dr. Howard W. Bosworth, Los Angeles, who will speak on "Evaluation of Methods of Treatment of Pulmonary Tuberculosis."

## GENERAL

**Bequest for Health Program in Israel.**—A gift of $170,000 from the estate of the late Florina Lasker, New York civic and social worker, has been made to Hadassah on its 40th anniversary. The money will be used to further Hadassah's health and welfare program in Israel. Miss Lasker died in September, 1949.

**Dr. Bortz to Address Drug Manufacturers.**—Dr. Edward L. Bortz, Philadelphia, former president of the American Medical Association, will speak at the annual meeting of the American Drug Manufacturers Association at the Homestead, Hot Springs, Va., April 28 to May 1. His address, "The Challenge of the Increasing Life Span of Our Population," will be delivered at the general session April 30.

**Vaccinations for Travelers.**—A list of vaccinations required of travelers in 183 countries and territories is available at the Pan-American Sanitary Building, the regional office of the World Health Organization, 1501 New Hampshire Ave., N. W., Washington, D. C. The vaccinations most generally required are against smallpox, yellow fever, and cholera. Several countries also insist on vaccination against typhoid and paratyphoid fevers, typhus, diphtheria, and tetanus.

**Volume in Honor of Colonel Craig.**—Pursuant to the merging of the American Society of Tropical Medicine and the National Malaria Society, the respective journals of these societies, the *American Journal of Tropical Medicine* and the *Journal of the National Malaria Society*, have been fused into one official organ, the *American Journal of Tropical Medicine and Hygiene.* The first issue of this publication, the January number, is a commemorative volume in honor of the late Dr. Charles Franklin Craig, colonel, U. S. Army Medical Corps, retired.

**Annual Award for Clinical Chemistry.**—The Ernst Bischoff Award of the American Association of Clinical Chemists, Inc., will be presented annually to a chemist on the staff of a hospital or clinical chemistry laboratory who has distinguished himself by achievement and devotion and has helped to solve those chemical problems that arise daily in the practice of the medical arts. The recipient of the award will receive $500, a scroll, and specially designed bronze medal. John G. Reinhold, Ph.D., Philadelphia, president of the association, has appointed Harry H. Sobotka, Ph.D., Mount Sinai Hospital, New York, chairman of the first award committee.

**Dr. Wegman to Head Division of Education.**—Dr. Myron E. Wegman, head of the department of pediatrics at the Louisiana State University School of Medicine, New Orleans, has been appointed to the staff of the Pan American Sanitary Bureau, regional office of the World Health Organization, to take charge of its newly-created division of education, training and technical services. He will assume duties June 1. Dr. Wegman is a member of the WHO Expert Committee on School Health Services and, as a consultant for the organization, has made comprehensive field surveys in Europe and South America.

**Meeting of College Health Association.**—The American College Health Association will hold its annual meeting May 1-3 at the Copley Plaza Hotel in Boston under the presidency of Dr. John E. Sawhill, New York. The program will include presentations on "Antibiotics in the Management of Common Infectious Diseases" by Dr. Chester S. Keefer, Wade Professor of Medicine, Boston University School of Medicine; "The Serious Recurrent Injuries of Athletics—Contraindications for Further Competitive Participation" by Dr. Augustus Thorndike, chief surgeon, department of hygiene, Harvard Medical School and Harvard Athletic Association, and "Impressions of Student Health Services in Great Britain" by Dr. Ruth E. Boynton, director of the students' health service at the University of Minnesota.

**Conference on Administrative Medicine.**—Authorities on administrative medicine from New York, Philadelphia, Pittsburgh, and Detroit will meet in the McMillin Academic Theater on the Columbia University campus May 15 at 9:30 a. m. to discuss "Current Problems in Administrative Medicine." The conference, sponsored by the Institute of Administrative Medicine of the Columbia School of Public Health, is designed not only for the medical profession but also for industrial and business executives, personnel directors, and other interested nonmedical persons. Guest sepakers will include Dr. Ephraim M. Bluestone, consultant at Montefiore Hospital, New York; Dr. James P. Dixon, commissioner of health, Philadelphia; Mr. Winslow Carlton, chairman of the board, Group Health Insurance, Inc., New York; and Dr. Leslie A. Falk, area medical administrator, United Mine Workers of America, Welfare and Retirement Fund, Pittsburgh.

**National Hearing Week.**—The educational campaign of National Hearing Week, May 4-10, aims to acquaint the public with existing programs for prevention of deafness, conservation of hearing, and rehabilitation of the hard of hearing. Dr. Thomas L. Tolan, Milwaukee, head of the American Hearing Society, stresses the fact that, in addition to the 115 chapters now affiliated with the society, there is urgent need for more chapters and extended services for the estimated 15 million acoustically handicapped children and adults in this nation. The American Hearing Society, a nonprofit, social service agency, promotes hearing conservation in schools; stimulates research; guides member hearing societies in 34 states, the District of Columbia, and Canada; publishes *Hearing News*, a monthly magazine; distributes hearing literature; provides field service throughout America in connection with community hearing programs, and furnishes information for individuals and organizations all over the world.

**Surgeons Meeting in Colorado Springs.**—A meeting of the Rocky Mountain District of the United States and Canadian chapters of the International College of Surgeons will be held at the Broadmoor Hotel, Colorado Springs, Colo., May 2-3. Participating provinces and states are Alberta, Montana, Idaho, Wyoming, Utah, Colorado, Arizona, and New Mexico. Among the papers to be presented are the following:

William Carpenter MacCarty, Rochester, Minn., UNESCO and its Efforts to Organize Medical and Scientific Congresses.
William R. Oakes, Los Alamos, N. M., Course of Testicular Injury Following Accidental Exposure to Nuclear Radiation: Report of a Case.
Archibald R. Buchanan, Denver, Fascial Planes of the Neck.
E. Stewart Taylor, Denver, Diagnostic Difficulties Surrounding Surgical Treatment of Hydatid Mole and Choriocarcinoma.
Thomas F. Keyes, Salt Lake City, Surgery of the Heart and Great Vessels.
James E. Musgrove, Albuquerque, N. M., Emergency Surgery of the Newborn.
Glenn W. Koford, Cheyenne, Wyo., Kielland Forceps in Persistent Occiput Posterior Presentation.
James M. Ovens, Phoenix, Ariz., Command Operation and Its Modifications.
Clarence N. Sorensen, Scottsbluff, Neb., Plain Film Study of the Abdomen.
Vernon L. Bolton, Colorado Springs, Colo., Radiology of Prolapsed Gastric Mucosa.
Erving F. Geever, Colorado Springs, Colo., Direct Tissue Studies with the Electron Microscope.
William A. Campbell Jr., Colorado Springs, Colo., Cardiac Arrest.

## ATIN AMERICA

**Society Election.**—Officers elected at the annual session of the Sociedad Mexicana de Oftalmologia on Feb. 12 include Dr. Daniel Silva, president; Dr. Manuel de Rivas Cherif, vice-president; Dr. Raul A. Chavira, permanent secretary, and Dr. Roberto Quiroz B., annual secretary.

**University Appointment.**—Dr. Waldemar Bianchi, who went to the Mayo Foundation in Minnesota as a graduate student in physical medicine under the auspices of the Institute of Inter-American Affairs in 1946, has been appointed professor of physical medicine of the Faculdade de Ciencias Medicas, University of the Federal District, Rio de Janeiro.

## CORRECTION

**Therapeutic Experiments in Female Infertility.**—In the article on this subject in The Journal, Feb. 23, 1952, page 604, reference was made to the British branch of the Schering Corporation. The firm referred to was British Schering Limited, which has no connection whatsoever with the Schering Corporation in the United States.

# EXAMINATIONS AND LICENSURE

## BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 24-26, 1952. Sec., Dr. D. G. Gill, 537 Dexter Ave., Montgomery 4.

Alaska:* *Examination.* Juneau. On application in other towns where there are board members. *Reciprocity.* On application. Sec., Dr. W. M. Whitehead, Box 140, Juneau.

Arkansas:* *Examination. Regular.* Little Rock, June 5-6. Sec., Dr. Joe Verser, Harrisburg. *Homeopathic.* Little Rock, June 10-11. Sec., Dr. Carl S. Bungart, 105 N. 14th St., Fort Smith. *Eclectic.* Little Rock, June 5-6. Sec., Dr. Frank C. Smith, 2301 Broadway, Little Rock.

California: *Written.* San Francisco, June 23-26; Los Angeles, Aug. 18-21; Sacramento, Oct. 20-23. Application must be received at least two weeks prior to date of examination. *Oral for Reciprocity Applicants.* San Francisco, June 21; Los Angeles, Aug. 16; San Francisco, Nov. 8. Applicants are requested not to arrange to come to an oral examination until they receive notice from the Credentials Committee. *Oral and Clinical for Foreign Medical School Graduates.* San Francisco, June 22; Los Angeles, Aug. 17; San Francisco, Nov. 9. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

Colorado:* *Examination.* Denver, June 10-12. Final date for filing application is May 12. *Reciprocity.* Denver, April 8. Final date for filing application was Mar. 10. Sec., Dr. Samuel H. Brown, 831 Republic Bldg., Denver.

Delaware: Dover, July 8-10. Sec., Dr. Joseph S. McDaniel, 229 South State St., Dover.

Florida:* *Examination.* Jacksonville, June 29-July 1. Sec., Dr. Homer L. Pearson, 701 Dupont Bldg., Miami.

Georgia: Atlanta and Augusta, June. Sec., Mr. R. C. Coleman, 111 State Capital, Atlanta 3.

Guam: The Commission on Licensure will meet whenever a candidate appears or submits his credentials. Ex. Sec., Dr. Austin W. Matthis, Agana.

Hawaii: *Examination.* Honolulu, July 14-17. Sec., Dr. I. L. Tilden, 1020 Kapiolani St., Honolulu.

Idaho: Boise, July 14-16. Sec., Mr. Armand L. Bird, 305 Sun Bldg., Boise.

Illinois: *Examination.* Chicago, June 24-26 and Oct. 7-9. Supt. of Regis., Mr. Charles F. Kervin, Capitol Bldg., Springfield.

Indiana: Indianapolis, June 1952. Sec., Dr. Paul R. Tindall, 1138 K of P Bldg., Indianapolis 4.

Iowa:* *Examination.* Iowa City, June 9-11. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kansas: Kansas City, June 4-5. Sec., Dr. O. W. Davidson, 864 New Brotherhood Bldg., Kansas City.

Kentucky: *Examination.* Louisville, June 3-5. Sec., Dr. Bruce Underwood, 620 S. Third St., Louisville.

Maryland: *Examination.* Baltimore, June 17-20. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 17-18. Sec., Dr. John A. Evans, 6029 Bellona Ave., Baltimore.

Michigan:* *Examination.* June. Sec., Dr. J. E. McIntyre, 100 W. Allegan St., Lansing 8.

Missouri: *Examination.* St. Louis, May 28-29 and June 13-14. *Reciprocity.* May 27. Ex. Sec., Mr. John A. Hailey, Box 4, State Capitol Bldg., Jefferson City.

Nebraska: *Examination.* Omaha, June 16-18. *Director*, Mr. Husted K. Watson, Bureau of Examining Boards, Room 1009, State Capitol, Lincoln.

New Jersey: *Examination.* Trenton, June 17-20. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

New Mexico:* Santa Fe, April 14-15. Sec., Dr. Charles J. McGoey, Coronado Bldg., Santa Fe.

North Carolina: *Reciprocity.* Pinehurst, May 5. *Written.* Raleigh, June 16-19; *Reciprocity.* Raleigh, June 17. Sec., Dr. Joseph J. Combs, 716 Professional Bldg., Raleigh.

North Dakota: *Examination.* Grand Forks, July 9-11. *Reciprocity.* Grand Forks, July 12. Sec., Dr. C. J. Glaspel, Grafton.

Ohio: *Examination.* Columbus, June 17-20. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus 15.

Oklahoma:* *Examination.* Oklahoma City, June 4-5. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon:* *Reciprocity.* Portland, April 18-19. *Examination.* Portland, July. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

South Carolina: *Reciprocity.* Columbia, April 7. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

South Dakota:* Rapid City, July 15. Sec., Dr. C. B. McVay, Yankton Clinic, Yankton.

Texas: Fort Worth, June 19-21. Sec., Dr. M. H. Crabb, 1714 Medical Arts Bldg., Fort Worth.

Utah: *Examination.* Salt Lake City, July. Asst. Dir., Mr. Frank E. Lees, 314 State Capitol Bldg., Salt Lake City 1.

Virginia: *Examination.* Richmond, June 12-14. *Reciprocity.* Richmond, June 11. Sec., Dr. K. D. Graves, 631 First St., S.W., Roanoke.

Virgin Islands: St. Thomas, June 4-5. Sec., Dr. Earle M. Rice, St. Thomas.

West Virginia: Charleston, April 7-8. Sec., Dr. H. H. Dyer, State Office Bldg. No. 3, Charleston 5.

Washington: Seattle, July. Sec., Mr. Edward C. Dohm, Department of Licenses, Olympia.

Wisconsin:* Milwaukee, July 8-10. Sec., Dr. A. G. Koehler, 46 Washington Blvd., Oshkosh.

## BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: *Examination.* On application. Juneau or other towns in Territory as decided by Board. *Reciprocity.* On application. Sec., Dr. C. Earl Albrecht, Box 1931, Juneau.

Arkansas: *Examination.* Little Rock, May 1-2. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

District of Columbia: *Examination.* Washington, April 21-22. Sec., Dr. Daniel L. Seckinger, 4130 E. Municipal Bldg., Washington, D. C.

Florida: Gainesville, June 7. *Examination.* Sec., Mr. M. W. Emmel, Box 340, University of Florida, Gainesville.

Michigan: *Examination.* May. Sec., Miss Eloise LeBeau, 501 W. Michigan Ave., Lansing 15.

Oklahoma: *Examination.* Oklahoma City, April 14. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: *Examination.* Portland, June 7, Sept. 6 and Dec. 6. Sec., Dr. Charles D. Byrne, State Board of Higher Education, University of Oregon, Eugene.

South Dakota: Vermillion, June 13-14. Sec., Dr. Gregg M. Evans, 310 E. 15th St., Yankton.

Texas: Austin, April 18-19. *Examination.* Examination may also be given in Galveston, Dallas and Houston. Sec., Bro. Raphael Wilson, 306 Nalle Bldg., Austin.

Wisconsin: *Examination.* Milwaukee, June 7 and Sept. 13. Sec., Mr. W. H. Barber, Ripon College, Ripon.

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* Basic Science Certificate required.

# MEETINGS

**American Medical Association, Chicago, June 9-13. Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.**

American Academy of Pediatrics, Areal Meeting, Hotel Statler, Washington, D. C., May 22-24. Dr. E. H. Christopherson, 636 Church St., Evanston, Ill., Executive Secretary.

American Academy of Tuberculosis Physicians, Chicago, June 7. Dr. Oscar S. Levin, P. O. Box 7011, Denver, Secretary.

American Association for Thoracic Surgery, Dallas, Texas, May 8-10. Dr. Paul C. Samson, 2938 McClure St., Oakland 9, Calif., Secretary.

American Association of Genito-Urinary Surgeons, Seaview Country Club, Absecon, N. J., June 19-21. Dr. Norris J. Heckel, 122 South Michigan Ave., Chicago 3, Secretary.

American Association of the History of Medicine, Kansas City, Kans., May 1-3. Dr. Iago Galdston, 2 East 103d St., New York 29, Secretary.

American Association on Mental Deficiency, Philadelphia, May 20-24. Dr. Neil A. Dayton, P. O. Box 96, Willimantic, Conn., Secretary.

American Blood Irradiation Society, Conrad Hilton Hotel, Chicago, June 7-8. Dr. H. T. Lewis, 5230 Center Ave., Pittsburgh, Secretary.

American Broncho-Esophagological Association, Royal York Hotel, Toronto, Canada, May 20-21. Dr. Edwin N. Broyles, 1100 North Charles St., Baltimore 1, Secretary.

American College of Chest Physicians, Congress Hotel, Chicago, June 5-8. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago, Executive Secretary.

American College Health Association, Copley Plaza Hotel, Boston, May 1-3. Miss Edith M. Lindsay, School of Public Health, University of California, Berkeley 4, Calif., Secretary.

American College of Surgeons, Sectional Meetings:
Toronto, Canada, Royal York Hotel, May 15-17. Dr. Stuart D. Gordon, 170 St. George St., Toronto 5, Canada, Chairman.

American Diabetes Association, Drake Hotel, Chicago, June 7-8. Dr. J. A. Reed, 11 West 42d St., New York 36, Secretary.

American Electroencephalographic Society, Hotel Claridge, Atlantic City, N. J., May 10-11. Dr. John A. Abbott, Massachusetts General Hospital, Boston 14, Secretary.

American Federation for Clinical Research, Haddon Hall, Atlantic City, N. J., May 4. Dr. Stewart Wolf, 525 East 68th St., New York 21, Secretary.

American Gastro-Enterological Association, Hotel Claridge, Atlantic City, N. J., May 2-3. Dr. Dwight L. Wilbur, 655 Sutter St., San Francisco 2, Secretary.

American Gastroscopic Society, Hotel Claridge, Atlantic City, N. J., May 2-3. Dr. H. Marvin Pollard, University Hospital, Ann Arbor, Mich., Secretary.

American Geriatrics Society, Hotel LaSalle, Chicago, June 5-7. Dr. Malford W. Thewlis, 25 Mechanic St., Wakefield, R. I., Secretary.

American Goiter Association, Chase Hotel, St. Louis, May 1-3. Dr. George C. Shivers, 100 East St. Vrain St., Colorado Springs, Colo., Secretary.

American Gynecological Society, The Homestead, Hot Springs, Va., May 12-14. Dr. John I. Brewer, 104 South Michigan Ave., Chicago, Secretary.

American Laryngological Association, Royal York Hotel, Toronto, Canada, May 23-24. Dr. Louis H. Clerf, 1530 Locust St., Philadelphia 2, Secretary.

American Laryngological, Rhinological and Otological Society, Royal York Hotel, Toronto, Canada, May 20-22. Dr. C. Stewart Nash, 277 Alexander St., Rochester 7, N. Y., Secretary.

American Medical Women's Association, Chicago, June 8. Dr. Irma Henderson-Smathers, 610 Medical Bldg., Asheville, N. C., Corresponding Secretary.

American Neurological Association, Hotel Claridge, Atlantic City, N. J., May 8-10. Dr. H. Houston Merritt, 710 West 168th St., New York 32, Secretary.

American Ophthalmological Society, Hot Springs, Va., June 5-7. Dr. Maynard C. Wheeler, 30 West 59th St., New York 19, Secretary.

American Otological Society, Royal York Hotel, Toronto, Canada, May 18-19. Dr. John R. Lindsay, 950 East 59th St., Chicago 37, Secretary.

American Pediatric Society, Hotel Chamberlin, Old Point Comfort, Va., May 7-9. Dr. Aims C. McGuiness, 237 Medical Laboratories, Univ. of Pennsylvania, Philadelphia 4, Secretary.

American Proctologic Society, Milwaukee, June 4-7. Dr. Stuart T. Ross, 131 Fulton Ave., Hempstead, L. I., N. Y., Secretary.

American Psychiatric Association, Atlantic City, N. J., May 12-16. Dr. R. Finley Gayle Jr., 6300 Three Chopt Rd., Richmond 21, Va., Secretary.

American Psychoanalytic Association, Chalfonte-Haddon Hall, Atlantic City, N. J., May 8-11. Dr. LeRoy M. A. Maeder, 1910 Rittenhouse Square, Philadelphia 3, Secretary.

American Radium Society, Chicago, June 8. Dr. John Wirth, 635 Herkimer St., Pasadena 1, Calif., Secretary.

American Rheumatism Association, Conrad Hilton Hotel, Chicago, June 6-7. Dr. William H. Kammerer, 33 East 61st St., New York 21, Secretary.

American Society for Clinical Investigation, Atlantic City, N. J., May 5. Dr. William M. M. Kirby, Univ. of Washington School of Medicine, Seattle 5, Secretary.

American Society for the Study of Sterility, Chicago, June 7-8. Dr. Walter W. Williams, 20 Magnolia Terrace, Springfield 8, Mass., Secretary.

American Therapeutic Society, Blackstone Hotel, Chicago, June 5-8. Dr. Oscar B. Hunter Jr., 915 Nineteenth St. N.W., Washington 6, D. C., Secretary.

American Trudeau Society, Hotel Statler, Boston, May 26. Dr. John D. Steele, 1790 Broadway, New York 19, Secretary.

American Venereal Disease Association, Washington, D. C., May 1-2. Dr. William L. Fleming, 750 Harrison Ave., Boston 18, Secretary.

Arizona Medical Association, Hotel Westward Ho, Phoenix, April 30-May 3. Dr. Frank J. Milloy, 15 E. Monroe St., Phoenix, Secretary.

Association of American Physicians, Atlantic City, N. J., May 6-7. Dr. Henry M. Thomas Jr., 1201 North Calvert St., Baltimore 2, Secretary.

California Medical Association, Biltmore Hotel, Los Angeles, April 27-30. Dr. Albert C. Daniels, 450 Sutter St., San Francisco 8, Secretary.

Catholic Hospital Association of the United States and Canada, Cleveland, May 26-29. Rev. John J. Flanagan, S.J., 1438 South Grand Blvd., St. Louis 4, Director.

Connecticut State Medical Society, Hartford, April 29-May 1. Dr. Creighton Barker, 160 St. Ronan Street, New Haven, Secretary.

Florida Medical Association, Hollywood, April 27-30. Dr. Samuel M. Day, P. O. Box 1018, Jacksonville, Secretary.

Georgia, Medical Association of, Atlanta-Biltmore Hotel, Atlanta, May 12-14. Dr. David H. Poer, 875 West Peachtree St. N.E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Honolulu, May 1-4. Dr. I. L. Tilden, 510 S. Beretania St., Honolulu 13, Secretary.

Idaho State Medical Association, Sun Valley, June 15-18. Dr. Robert S. McKeon, 305 Sun Bldg., Boise, Secretary.

Illinois State Medical Society, Hotel Sherman, Chicago, May 13-15. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary.

Iowa State Medical Society, Des Moines, April 28-30. Dr. Allan B. Phillips, 406 Sixth Avenue, Des Moines 9, Secretary.

Kansas Medical Society, Town House, Kansas City, April 27-May 1. Dr. Dale D. Vermillion, 512 New England Bldg., Topeka, Secretary.

Louisiana State Medical Society, Shreveport, April 28-30. Dr. C. Grenes Cole, 1430 Tulane Ave., New Orleans 12, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 28-30. Dr. George H. Yeager, 1211 Cathedral St., Baltimore 1, Secretary.

Massachusetts Medical Society, Hotel Statler, Boston, May 20-22. Dr. H. Quimby Gallupe, 22 Fenway, Boston 15, Secretary.

Minnesota State Medical Association, Minneapolis, May 26-28. Dr. B. B. Souster, 496 Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Mississippi State Medical Association, Jackson, May 13-15. Mr. Roland B. Kennedy, 508 First Federal Bldg., Jackson, Executive Secretary.

National Tuberculosis Association, Copley Plaza and Statler Hotels, Boston, May 26-30. Mr. Kemp D. Battle, 1790 Broadway, New York 19, Secretary.

Nebraska State Medical Association, Cornhusker Hotel, Lincoln, May 12-15. Dr. R. B. Adams, 1315 Sharp Bldg., Lincoln 8, Secretary.

New Jersey, Medical Society of, Haddon Hall, Atlantic City, May 19-21. Dr. Marcus H. Greifinger, 315 West State St., Trenton 8, Secretary.

New Mexico Medical Society, Carlsbad, May 8-10. Dr. L. G. Rice Jr., 221 West Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Hotel Statler, New York, May 12-16. Dr. Walter P. Anderton, 292 Madison Ave., New York 17, Secretary.

North Carolina, Medical Society of the State of, Hotel Carolina, Pinehurst, May 5-7. Dr. Millard D. Hill, 203 Capitol Club Bldg., Raleigh, Secretary.

Ogden Surgical Society, Orpheum Theater, Ogden, Utah, May 21-23. Dr. George M. Fister, Ogden, Utah, President.

Ohio State Medical Association, Cleveland, May 20-22. Mr. Charles S. Nelson, 79 East State St., Columbus 15, Executive Secretary.

Oklahoma State Medical Association, Oklahoma City, May 19-21. Mr. R. H. Graham, 1227 Classen St., Oklahoma City, Executive Secretary.

Rhode Island Medical Society, Providence, May 6-8. Dr. Morgan Cutts, 106 Francis St., Providence 3, Secretary.

Society for Investigative Dermatology, Hotel Sherman, Chicago, June 7-8. Dr. Herman Beerman, 255 South 17th St., Philadelphia 3, Secretary.

Society for Pediatric Research, Old Point Comfort, Va., May 5-6. Dr. Sydney S. Gellis, 300 Longwood Ave., Boston 15, Secretary.

Society for Vascular Surgery, Chicago, June 8, Dr. George D. Lilly, 331 Ingraham Bldg., Miami 32, Fla., Secretary.

Society of American Bacteriologists, Hotel Statler, Boston, April 27-May 1. Dr. Henry W. Scherp, 260 Crittenden Blvd., Rochester 20, N. Y., Secretary.

Society of Biological Psychiatry, Hotel Claridge, Atlantic City, N. J., May 11. Dr. George N. Thompson, 1136 West Sixth St., Los Angeles 17, Secretary.

South Carolina Medical Association, Ocean Forest Hotel, Myrtle Beach, May 13-15. Dr. N. B. Heyward, 120 West Cheves St., Florence, Secretary.

South Dakota State Medical Association, Sioux Falls, May 18-20. Dr. L. J. Pankow, 302 First National Bank Bldg., Sioux Falls, Secretary.

Southern Oregon Medical Society, Roseburg, May 13. Dr. F. C. Adams, 1435 Esplanade St., Klamath Falls, Secretary.

Texas Medical Association, Dallas, May 4-7. Dr. Sam N. Key Sr., 700 Guadalupe St., Austin 3, Secretary.

The Endocrine Society, Palmer House, Chicago, June 5-7. Dr. Henry H. Turner, 1200 North Walker St., Oklahoma City 3, Secretary.

Wyoming State Medical Society, Nobel Hotel, Lander, June 5-7. Dr. Glenn W. Koford, 2020 Carey Ave., Cheyenne, Secretary.

## INTERNATIONAL

Australasian Medical Congress, Melbourne Victoria, Australia, Aug. 22-30. Dr. C. H. Dickson, Medical Society Hall, 426 Albert St., East Melbourne, Victoria, Australia, General Secretary.

Commonwealth and Empire Health and Tuberculosis Conference, Central Hall, London, England, July 8-13. Dr. J. H. Harley Williams, Tavistock House North, Tavistock Sq., London, W.C.1, England, Secretary General.

Congress of the International Diabetes Federation, Leyden, Netherlands, July 7-12. Dr. F. Gerritzen, 33, Prinsegracht, The Hague, Netherlands, Secretary.

European Congress of Cardiology, University of London, Bloomsbury, W.C.1, England, Sept. 10-12. Dr. K. Shirley Smith, 35 Wimpole St., London, W.1, England, Secretary.

European Society of Cardiovascular Surgery, Strasbourg, France, Oct. 3-4. Sir James Learmonth, Department of Surgery, University New Buildings, Edinburgh 8, Scotland.

Interamerican Cardiological Congress, Buenos Aires, Argentina, Aug. 31-Sept. 7. Dr. Blas Moia, Larrea 1132, Buenos Aires, Argentina, Secretary-General.

Inter-American Congress of Public Health, Havana, Cuba, Sept. 27-Oct. 1. Pan-American Sanitary Bureau, 2001 Connecticut Ave., Washington, D. C.

Inter-American Congress of Radiology, Mexico City, Mexico, Nov. 2-8. Dr. Guido Torres Martinez, Marsella No. 11, Mexico, D.F., Secretary-General.

International College of Surgeons, Madrid, Spain, May 20-24. Dr. Max Thorek, 850 West Irving Park Road, Chicago, Ill., U. S. A., Secretary-General.

International Congress of Biochemistry, Paris, France, July 21-27. Prof. Jean Courtois, 4, Avenue de l'Observatoire, Paris 6$^e$, France, Secretary.

International Congress of Comparative Pathology, Madrid, Spain, May 4-11. Prof. Carda-Aparici, Calle Fernando VI.8, Madrid, Spain, Secretary.

International Congress of Dermatology and Syphilology, London, England, July 21-26. Dr. Gordon B. Mitchell-Heggs, 5, Lisle St., London, W.C.2, England, General Secretary.

International Congress of Dietetics, Royal Tropical Institute, Amsterdam, The Netherlands, July 7-11. Miss Diane J. Ten Haaf, Educational Bureau of the Nutritional Council, 42 Koninginnegracht, The Hague, Netherlands, General Secretary.

International Congress on Diseases of the Chest, Rio de Janeiro, Brazil, Aug. 24-30. Mr. Murray Kornfeld, 112 East Chestnut St., Chicago 11, Illinois, Executive Secretary.

International Congress of Haematology, Mar del Plata, Argentina, Sept. 21-26. Dr. Carlos Reussi, Anchorena 1710, Buenos Aires, Argentina, Secretary.

International Congress of Health Technicians, Palais de la Mutualite, Paris, France, June 9-14. Secretariat General, 6 Square Desaix, Paris XV$^e$, France.

International Congress of the History of Medicine, Nice-Cannes, France, and Monaco, Sept. 8-18. Dr. F. A. Sondervorst, 124 Avenue des Allies, Louvain, Belgium, Secretary-General.

International Congress of Internal Medicine, Friends House, London, N.W.1, Eng. Sept. 15-18. Sir Harold Boldero, 12 Pall Mall East, London, S.W.1, England, Secretary.

International Congress on Medical Records, London, England, Sept. 7-12. Miss Gwen Perkins, 120 C Street S.E., Washington, D. C., Chairman.

International Congress of Medicine and Sport, Paris, France, May 29-June 1. Prof. Chailley-Bert, 1 rue Lacretelle, Paris 15$^e$, France, Chairman.

International Congress on Neuropathology, Rome, Italy, Sept. 8-13. Dr. Armando Ferraro, 722 W. 168th St., New York, N. Y., U. S. A., Secretary General.

International Congress of Physical Medicine, London, England, July 14-19. Dr. A. C. Boyle, 45, Lincoln's Inn Fields, London, W.C.2, England, Hon. Secretary.

International Congress of Physiopathology of Animal Reproduction and Artificial Insemination, Copenhagen, Denmark, July 7-10. Prof. Ed. Sorensen, The Royal Veterinary and Agricultural College, Bülowsvej 13, Copenhagen V, Denmark.

International Congress of Urology, The Waldorf-Astoria, New York, N. Y., U. S. A., Sept. 15-18. Dr. John A. Taylor, 2 East 54th St., New York, N. Y., U. S. A., Secretary-General.

International Society of Geographic Pathology, Liège, Belgium, July 15-18. Dr. Fred C. Roulet, Habelstr. 24, Basel, Switzerland, Secretary General.

International Union Against Tuberculosis, Rio de Janeiro, Brazil, Aug. 24-27. Prof. Etienne Bernard, 66 Blvd. St. Michel, Paris 6e, France, Secretary-General.

Neuroradiologic Symposium, Stockholm, Sweden, Sept. 17-20. Docent Ake Lindbom, Symposium Neuroradiologicum, Serafimerlasarettet, Stockholm K., Sweden, Secretary.

Pan-American Congress of Gastroenterology, Mexico City, D.F., May 11-17. Dr. R. Flores-Lopez, Calle Dr. Balmis, No. 148, Mexico City, D.F., Secretary.

World Medical Association, Athens, Greece, Oct. 12-16. Dr. Louis H. Bauer, 2 East 103d St., New York 29, N. Y., Secretary General.

# DEATHS

**McCoy, George Walter** ⊕ Washington, D. C., since 1916 a member of the Council on Pharmacy and Chemistry of the American Medical Association, died April 2, aged 75, of coronary thrombosis. Dr. McCoy was born in Cumberland Valley, Pa., June 4, 1876. He was graduated from the University of Pennsylvania School of Medicine, Philadelphia in 1898 and two years later joined the U. S. Marine Hospital Service, now the U. S. Public Health Service. He served first as assistant surgeon, becoming surgeon in 1913 and a medical director in 1930. He retired from the Public Health Service in 1940 after a long and distinguished career. Dr. McCoy was in charge of the U. S. Plague Laboratory in San Francisco from 1908 to 1911; and from 1911 to 1915, when director of the U. S. Leprosy Investigation Station, he concurrently served as sanitary adviser to the Hawaiian Government. In 1915 he became director of the Hygienic Laboratory of the Public Health Service, now known as the National Institute of Health. On concluding his service with the institute in 1937, Dr. McCoy became engaged in epidemiologic studies in leprosy and in 1938 became director of the department of preventive medicine and public health at the Louisiana State University School of Medicine, New Orleans, serving until 1947 when he became professor emeritus. In 1945-1946 he was acting dean at the university.

Dr. McCoy was a member of the American Society of Tropical Medicine, American Association of Pathologists and Bacteriologists, Association of Military Surgeons of the United States, American Public Health Association, Philadelphia Pathological Society, California Academy of Medicine, Association of American Physicians, and the American College of Physicians. He was an honorary member of Delta Omega and in 1935 president of the Washington (D. C.) Academy of Science. For many years he was an honorary vice-president of the American Mission to Lepers. He was also a diplomate of the National Board of Medical Examiners and since 1920 had been a member of the U. S. Pharmacopeia Revision Committee. As a member of the Committee for the Protection of Medical Research of the American Medical Association for more than 20 years he provided congressional committees with information on bills introduced by antivivisectionists and antivaccinationists. These presentations did much to obviate the hazards of legislation that would obstruct the progress of scientific medicine.

The study of leprosy was a lifelong interest of Dr. McCoy. While his contributions to the literature included numerous papers on bacteriology and public health subjects, they reflected a special interest in plague and leprosy. In 1933 he was a member of a board to study the existing facilities for the care and treatment of leprous persons in Hawaii, and, in 1937, on his retirement as director of the National Institute of Health, he was assigned by the Public Health Service to make a study of the disease in the Continental United States and the island possessions. In 1937 he delivered the second Charles Franklin Craig Lecture at the American Society of Tropical Medicine on "The History of Leprosy in the United States." Dr. McCoy had represented his country on the Permanent Standards Commission of the Health Section of the League of Nations from 1922 to 1937, and later served as a member of an advisory committee to the National Foundation for Infantile Paralysis. In 1931 Dr. McCoy was awarded the Sedgwick Memorial Medal of the American Public Health Association.

**Ralston, William Wallace** ⊕ Houston, Texas; born in Hempstead, Texas, June 8, 1875; University of Texas School of Medicine, Galveston, 1899; veteran of the Spanish-American War and World War I; past president of the Harris County Medical Society; one of the founders and past president of the Texas Society of Ophthalmology and Otolaryngology; member of the House of Delegates of the American Medical Association in 1920; served as councilor of the Ninth District of the State Medical Association of Texas; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; consulting ophthalmologist, Methodist and Hermann hospitals; one of the founders and ophthalmologist, Houston Eye, Ear and Throat Hospital, where he died Nov. 3, aged 76, of cerebral hemorrhage.

**Williams, Charles Mallory** ⊕ Stonington, Conn.; born Oct. 6, 1872; Columbia University College of Physicians and Surgeons, New York, 1898; served as professor of dermatology and syphilology at the New York Post-Graduate Medical School and Hospital, Columbia University; formerly professor of diseases of the skin at the University of Vermont College of Medicine in Burlington; specialist certified by the American Board of Dermatology and Syphilology; member of the American Dermatological Association; served during World War I; president of the medical board from 1928 to 1934 and attending physician from 1920 to 1934, New York Skin and Cancer Hospital; formerly consulting dermatologist, Memorial Hospital; died Nov. 12, aged 79.

**Sheahan, William Lawrence,** New Haven, Conn.; College of Physicians and Surgeons, Baltimore, 1912; formerly clinical instructor of ophthalmology at Yale University School of Medicine; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; served during World War I; member of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology; twice served on the board of aldermen; affiliated with Grace Hospital and the Hospital of St. Raphael, where he died Dec. 16, aged 64.

**Allen, Maurice Linsey** ⊕ Cleveland; Starling-Ohio Medical College, Columbus, 1913; on the courtesy staffs of Huron Road, St. Luke's, and Booth Memorial hospitals; on the staff of the Glenville Hospital; died in Lakeside Hospital Jan. 20, aged 61.

**Anderson, William Jefferson** ⊕ Meridian, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1902; member of the American Academy of General Practice; died Dec. 19, aged 79.

**Bayley, Alvin Jay** ⊕ Colonel, U. S. Army, Glendale, Calif.; University of California Medical School, Los Angeles, 1912; served during World War I; enterd the regular army in April 1917; retired Nov. 30, 1946; died in Los Angeles Jan. 5, aged 64, of pneumonia.

**Biles, James David** ⊕ Sumner, Miss.; Louisville (Ky.) Medical College, 1898; past president of the Clarksdale and Six Counties Medical Society; vice-president of the Bank of Sumner; for many years surgeon for the Illinois Central Railroad; died in Baptist Hospital, Memphis, Tenn., Dec. 21, aged 79, of congestive heart failure.

**Billings, Alva Edgar,** Topeka, Kan.; University Medical College of Kansas City, Mo., 1909; member of the American Medical Association; served during World War I; died in the Veterans Administration Hospital, Knoxville, Iowa, Jan. 16, aged 71, of pneumonia.

**Boleyn, E. Sydney,** Stillwater, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1894; secretary of the Washington County Medical Society; on the staff of the Lakeview Memorial Hospital, died Dec. 23, aged 87, of coronary thrombosis.

**Cousins, William Lewis,** Portland, Maine; University of Pennsylvania Department of Medicine, Philadelphia, 1894; past president of the Cumberland County Medical Society; fellow of the American College of Surgeons; member of the New England Surgical Society; served during World War I; consulting surgeon, Maine General Hospital; died Feb. 16, aged 81, of hemiplegia.

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⊕ Indicates Fellow of the American Medical Association.

**Gordon, Clifford Myota,** Los Angeles; Howard University College of Medicine, Washington, D. C., 1927; died Jan. 22, aged 51, of bronchogenic carcinoma.

**Gorson, Samuel Francis** ⊕ Atlantic City, N. J.; Jefferson Medical College of Philadelphia, 1915; examining physician for the New Jersey Civil Service Commission; affiliated with Atlantic City Hospital, where he died Jan. 26, aged 59, of acute coronary occlusion.

**Gottlieb, Bernard Norman** ⊕ Brooklyn; Medical College of Virginia, Richmond, 1925; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology and the International College of Surgeons; served during World War I; on the staffs of the Cumberland and Prospect Heights hospitals; died in Mount Sinai Hospital, New York, Jan. 30, aged 51, of uremia.

**Gravatt, Arthur B.,** Ellerson, Va.; University College of Medicine, Richmond, 1909; served as county coroner; for many years a surgeon for the Chesapeake and Ohio Railroad; served on the staffs of the Stuart Circle Hospital and Retreat for the Sick in Richmond; died Jan. 2, aged 67, of cerebral hemorrhage.

**Haft, Henry Harris** ⊕ Syracuse, N. Y.; Syracuse University College of Medicine, 1917; clinical professor of medicine at his alma mater; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; served during World Wars I and II; on the staff of the Hospital of the Good Shepherd, Syracuse University; died Jan. 23, aged 60, of leukemia.

**Hagmeier, Otto Charles,** Seaside, Ore.; College of Physicians and Surgeons, Baltimore, 1906; member of the American Medical Association; served during World War I; appointed to the state board of health in 1945, later reappointed, and in 1951 served as vice-president and was elected president in January of this year; affiliated with Columbia Hospital in Astoria and Seaside General Hospital; died Jan. 11, aged 73, of carcinoma.

**Hedback, Axel Emanuel** ⊕ Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1897; past president of the Hennepin County Medical Society; formerly member of the state board of health; affiliated with the Swedish Hospital; editor emeritus of *Modern Medicine,* editor of *Geriatrics,* and on the board of editors of *The Journal Lancet;* died Dec. 31, aged 77, of cerebral hemorrhage and cerebral arteriosclerosis.

**Hinkson, John Ernest,** Lansing, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1895; died in Ypsilanti Dec. 29, aged 81, of arteriosclerotic heart disease.

**Houston, Hal Edward** ⊕ Murray, Ky.; Vanderbilt University School of Medicine, Nashville, 1935; certified by the National Board of Medical Examiners; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; past president of the Southwestern Medical Association; served during World War II; affiliated with Houston McDavitt Clinic; ied in Barnes Hospital, St. Louis, Jan. 14, aged 40, of burns uffered in a fire that destroyed his home.

**Hutchings, Ernest Hughs,** Sparta, Ga.; University of Georgia Medical Department, Augusta, 1913; died in Columbia, S. C., Dec. 2, aged 65, of cerebral hemorrhage.

**Johnson, Hans** ⊕ Kerkhoven, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1904; died in Abbott Hospital, Minneapolis, Jan. 21, aged 70, of injuries received in an automobile accident.

**Jones, Charles W.,** Olathe, Kan.; Keokuk (Iowa) Medical College, 1896; veteran of the Spanish-American War and World War I; past president of the Johnson County Medical Society; member of the state board of medical registration and examination; at one time county coroner; on the staff of St. Mary's Hospital in Kansas City, Mo.; formerly director of the First National Bank; died Jan. 28, aged 76, of heart disease and cancer.

**La Force, Edward Francis** ⊕ Burlington, Iowa; Rush Medical College, Chicago, 1900; member of the American Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Otolaryngology; died Jan. 22, aged 78, of coronary thrombosis.

**Longfellow, Charles Fay,** Bloomfield, N. J.; Jefferson Medical College of Philadelphia, 1904; member of the Association for the Study of Internal Secretions; president of the G. W. Carnrick Company in Newark, where he had been vice-president and scientific director and general director of scientific personnel; died Jan. 30, aged 69, of hypertension and arteriosclerosis.

**McCabe, William Michael,** Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1903; member of the American Medical Association; fellow of the American College of Surgeons; served on the faculty of his alma mater; at one time superintendent of the Tennessee Home Training School for Feebleminded Persons in Donelson, and medical superintendent and surgeon at Nashville City Hospital; formerly associated with Central State Hospital, and the State Prison; died Jan. 3, aged 70.

**McNeil, Albert Gordon** ⊕ River Forest, Ill.; Bennett Medical College, Chicago, 1912; affiliated with Oak Park (Ill.) Hospital; died Feb. 10, aged 69, of aplastic anemia.

**McVay, Lewis Clark** ⊕ Phoenix, Ariz.; St. Louis University School of Medicine, 1936; specialist certified by the American Board of Obstetrics and Gynecology; affiliated with Good Samaritan and St. Joseph's hospitals; died Jan. 24, aged 42, of coronary thrombosis.

**Macaulay, Evan McLean,** Wausau, Wis.; (licensed in Wisconsin in 1899); formerly medical director of Mount View Sanatorium; died Dec. 4, aged 78, of carcinoma of the urinary bladder.

**Maes, Charles Gerald** ⊕ Kimberly, Wis.; Milwaukee Medical College, 1907; first village president; past president of the staff of St. Elizabeth Hospital in Appleton; died Jan. 8, aged 86, of congestive heart failure.

**Merrow, Llewella Maria,** Elyria, Ohio; University of Michigan Homeopathic Medical School, Ann Arbor, 1905; died Dec. 16, aged 77, of carcinoma of the stomach.

**Miles, May Sallie,** Greensboro, N. C.; Laura Memorial Woman's Medical College, Cincinnati, 1898; past president of the Guilford County Medical Society; died in Guilford County Sanatorium in Jamestown Feb. 7, aged 81, of carcinoma of the lungs.

**Nason, John Blaisdell** ⊕ Tyrone, Pa.; Rush Medical College, Chicago, 1894; served during World War I; for many years chairman of the board of the First Blair County National Bank; died Nov. 30, aged 80, of acute myocardial insufficiency.

**O'Leary, Francis Thomas,** Logansport, Ind.; University of Nashville (Tenn.) Medical Department, 1899; member of the American Medical Association; died Jan. 22, aged 77, of coronary occlusion.

**Owens, Robert Lee,** Hockley, Texas; Hospital College of Medicine, Louisville, Ky., 1906; member of the American Medical Association and the Colorado State Medical Society; served during World War I; died in Lubbock Nov. 22, aged 71, of adenocarcinoma of the prostate.

**Parker, Ernest Eugene,** Oxford, Ind.; Kansas City (Mo.) Homeopathic Medical College, 1901; member of the American Medical Association; served during World War I; formerly county health officer; on the courtesy staff, St. Elizabeth Hospital, where he died Feb. 9, aged 77, of carcinoma of the prostate and peritonitis.

**Parker, Gaston C.,** Chicago; Chicago College of Medicine and Surgery, 1915; member and past president of the staff of Walther Memorial Hospital; chief surgeon of the Chicago Tunnel Company; member of the American Medical Association; died in St. Luke's Hospital Jan. 19, aged 68, of pulmonary embolism and pyelitis.

**Parrish, Bert Byrd,** Kirksville, Mo.; Barnes Medical College, St. Louis, 1909; died Dec. 20, aged 65, of coronary thrombosis.

**Parsons, William Floy,** Fort Worth, Texas; Baylor University College of Medicine, Dallas, 1932; fellow of the American College of Surgeons; awarded a Bronze Star during his service in World War II; consultant in surgery, St. Joseph's, Harris, All Saints, and Pennsylvania Avenue hospitals; died Jan. 31, aged 53.

**Phippen, Hardy** ⊕ Salem, Mass.; Harvard Medical School, Boston, 1889; fellow of the American College of Surgeons; member of the New England Surgical Society; surgeon on the advisory staff, Salem Hospital, where he died Jan. 7, aged 89, of arteriosclerotic heart disease.

**Pickard, Matthew W.**, Kerrville, Texas; Kansas City (Mo.) Medical College, 1898; member of the American Medical Association, Industrial Medical Association, and the Missouri State Medical Association; fellow of the American College of Surgeons; died Jan. 1, aged 77.

**Pitman, James Fling**, Lake City, Fla.; Atlanta College of Physicians and Surgeons, 1913; specialist certified by the American Board of Radiology; member of the Radiological Society of North America, American Medical Association, and the American College of Radiology; past president of the Columbia County Medical Society and the Florida Radiological Society, of which he had been treasurer; served during World War I; affiliated with Veterans Administration Hospital; died Jan. 31, aged 61, of adenocarcinoma.

**Pomerene, Myron B.**, Millersburg, Ohio; Hospital College of Medicine, Louisville, 1902; died Feb. 18, aged 75.

**Poole, Charles Judson** ⊕ Tucson, Ariz.; Barnes Medical College, St. Louis, 1900; member of the Illinois State Medical Society; veteran of the Spanish-American War and World War I; formerly practiced in Mt. Vernon, Ill.; died Nov. 14, aged 77, of lobar pneumonia.

**Powers, Edward Emmett** ⊕ Rome, N. Y.; University of Buffalo School of Medicine, 1912; fellow of the American College of Surgeons; past president of the Oneida County Medical Society; surgeon, Rome Hospital and Murphy Memorial Hospital; consulting surgeon, Oneida County Hospital and Rome State School; died Jan. 9, aged 64.

**Ross, George William** ⊕ Watseka, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; past president of the Iroquois County Medical Society; served as mayor; for many years a member of the high school board; president of the Watseka Public Library; affiliated with Iroquois Hospital; served during World War I; vice president of Iroquois Federal Savings and Loan Association; died in Guadalajara, Mexico, Feb. 9, aged 68, of coronary thrombosis.

**Sandusky, Clarence M.** ⊕ Jacksonville, Fla.; Louisville (Ky.) Medical College, 1902; member of the Southern Medical Association; physician for the Atlantic Coast Line and Seaboard Air Line Railroads; president of the Title & Trust Company of Florida; died in Jefferson Hospital, Philadelphia, Dec. 29, aged 74, of carcinoma of the thyroid gland.

**Sawyer, Harold Paine** ⊕ Colonel, U. S. Army, retired, Montgomery, Ala.; Johns Hopkins University School of Medicine, Baltimore, 1906; served during World Wars I and II; entered the regular army as a captain Sept. 14, 1920; retired as colonel Nov. 30, 1944; from 1946 to 1950 director of laboratories, state department of health; died Dec. 18, aged 71, of mesenteric thrombosis and acute hemorrhagic pancreatitis.

**Schaefer, Theodore A.**, Baltimore; University of Maryland School of Medicine, Baltimore, 1907; member of the American Medical Association; died in Tilghman Jan. 9, aged 78, of diabetes mellitus and cerebral thrombosis.

**Schreuder, Louis S.**, Seattle; Rush Medical College, Chicago, 1898; also a graduate in pharmacy; died Jan. 2, aged 89, of injuries received in a fall.

**Schwartz, Alfred Alexander** ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1912; member of the American Academy of Ophthalmology and Otolarngology; specialist certified by the American Board of Otolaryngology; served overseas during World War I; affiliated with Montefiore and Sydenham hospitals; died Jan. 13, aged 60, of a heart attack.

**Shonkwiler, Allen Joseph**, Rockville, Ind.; Medical College of Indiana, Indianapolis, 1905; died Jan. 10, aged 72, of coronary occlusion.

**Shurley, Eugene Reginald**, Money, Miss.; Mississippi Medical College, Meridian, 1912; died in Greenwood-Lefiore Hospital in Greenwood Jan. 6, aged 67.

**Sinclair, Rosa Munda**, Dunsmuir, Calif.; California Medical College, San Francisco, 1902; died in Siskiyou County General Hospital, Yreka, Jan. 5, aged 95, of arteriosclerosis and cerebral hemorrhage.

**Snyder, Robert John**, Philadelphia; Temple University School of Medicine, Philadelphia, 1944; member of the American Medical Association; served during World War II; on the staff of Nazareth Hospital, where he died Dec. 26, aged 32, of heart disease.

**Spears, Benjamin Herman**, Brooklyn; Albany (N. Y.) Medical College, 1915; died Nov. 21, aged 59, of coronary thrombosis.

**Spotts, Samuel Dale** ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1922; fellow of the American College of Surgeons; on the faculty of his alma mater; affiliated with Philadelphia General, St. Joseph's, and Jefferson hospitals; on the courtesy staff of Woman's and Hahnemann hospitals; chief of staff and consulting surgeon, Quakertown Community Hospital in Quakertown; a trustee of Bucknell University in Lewisburg, Pa.; died Feb. 1, aged 56, of carcinomatosis secondary to x-ray burns of the hands.

**Stanford, John A.**, Fort Lauderdale, Fla.; Medical College of the State of South Carolina, Charleston, 1909; member of the American Medical Association; served as president of the First National Bank; died Dec. 27, aged 76, of arteriosclerosis and diabetes mellitus.

**Starner, Albert A.**, Oyster Bay, N. Y.; College of Physicians and Surgeons of Chicago, 1896; formerly practiced in Marion, Ohio, where he was affiliated with the City Hospital; died Jan. 21, aged 82, of paralysis agitans and bronchopneumonia.

**Stibbens, Frank Hamilton** ⊕ Oakland, Calif.; Cooper Medical College, San Francisco, 1903; died Feb. 13, aged 73, of bronchopneumonia of the left lung.

**Stull, Henry Tuttle** ⊕ Chevy Chase, Md.; Temple University School of Medicine, Philadelphia, 1913; specialist certified by the American Board of Radiology; member of the American College of Radiology; on the staff of the Suburban Hospital in Bethesda; served as president of the Temple University Alumni Association; died Dec. 18, aged 66, of coronary occlusion.

**Tarr, H. L.**, Jefferson City, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1907; died in Baptist Hospital, Knoxville, Jan. 7, aged 70, of heart disease.

**Thomas, William Marion H.**, Macon, Ga.; Meharry Medical College, Nashville, Tenn., 1924; died Dec. 4, aged 56, of coronary thrombosis.

**Walton, John Marshall**, Decatur, Ga.; University of Georgia Medical Department, Augusta, 1926; member of the American Medical Association; formerly associated with the health department in Atlanta; died Jan. 4, aged 50.

**Warner, Raymond Crandall**, Geneva, Ohio; Cleveland Homeopathic Medical College, 1910; died Feb. 6, aged 70, of Parkinson's disease.

**Weaver, Harry Bishop** ⊕ Greenville, Mich.; Detroit College of Medicine, 1908; past president of the Ionia-Montcalm Counties Medical Society; served during World War I; on the staff of the United Memorial Hospital; died Jan. 25, aged 70, of coronary thrombosis.

**Whitehead, Howard**, Columbus, Ohio; Starling Medical College, Columbus, 1893; past president of the Columbus Academy of Medicine; one of the founders and directors of the First Federal Savings & Loan Company; died Nov. 10, aged 83.

**Williams, Virgil Gaines**, Grantville, Ga.; College of Physicians and Surgeons, Baltimore, 1901; died Dec. 16, aged 75.

**Wilson, Thomas Luther** ⊕ Pittsburgh; Maryland Medical College, Baltimore, 1903; on the staff of St. John's Hospital; died Jan. 14, aged 72, of coronary occlusion.

# GOVERNMENT SERVICES

## ARMY

**Pediatric Clinic in Combat Zone.**—The first pediatric clinic ever to be established in a combat zone is claimed by X Corps civil affairs officers in Korea. Staffed by qualified pediatricians on active duty, the clinic is held Wednesday afternoons at the X Corps Civilian Hospital. Lt. Comdr. Arvin T. Henderson of Ridgeville, Ind., commanding officer of Medical Company A, First Marine Division hospital, is in charge of the clinic. Treatment for many of the children will be on a weekly "outpatient" basis until exact diagnoses can be made. Patients in serious condition are immediately hospitalized. An officer said "As long as we have empty beds and a light patient load, we can aid our civilian friends at no expense to the Army, using medicines purchased with United Nations Civil Assistance Command, Korea funds."

## NAVY

***First Aid Program Completed.***—The Secretary of Defense in March, 1951, directed the military activities in the District of Columbia to train at least 10% of their personnel in first aid procedures. In compliance with this request the Bureau of Medicine and Surgery, in cooperation with the Navy Department Provost Marshal's Office, organized first aid training courses in the Washington area buildings in which the Navy Department is the major tenant. Nineteen Naval Hospital Corpsmen from Naval medical activities of the area served as instructors. This training program was completed on Feb. 15, 1952, at which time 2,995 individuals had been trained in first aid procedures.

## DEPARTMENT OF DEFENSE

**Dr. Casberg Succeeds Dr. Lovelace as Chairman.**—Secretary of Defense Lovett has announced the resignation of Dr. W. Randolph Lovelace II, as chairman of the Armed Forces Medical Policy Council, and the appointment of Dr. Melvin A. Casberg, vice-chairman of the council, as Dr. Lovelace's successor. Dr. Lovelace stated that his responsibilities in connection with the Lovelace Clinic at Albuquerque, N. M., and with the Lovelace Foundation for Medical Education and Research required his return to private practice. Dr. Casberg, prior to his appointment as vice-chairman of the council in January, 1952, was dean of the St. Louis University School of Medicine. The Armed Forces Medical Policy Council develops and establishes uniform or joint programs in the Army, Navy, and Air Force medical services. The chairman serves as the Secretary of Defense's advisor on medical matters.

**Institute of Pathology.**—An exhibit tracing 90 years of the history of the Armed Forces Institute of Pathology, formerly the Army Medical Museum, will be opened on May 21, the anniversary of its establishment, in the Medical Museum, 9th and Independence Ave., S. W., Washington, D. C., and will remain on display for six months. Surgeon John H. Brinton, the first curator, toured the battlefields of the Civil War to collect material for the museum and the medical history of the war. On display will be relics of Major Walter Reed, who was curator of the museum when he engaged in his work on yellow fever, and Major F. F. Russell (now brigadier general, ret.) who gave the first immunizing injections in the army against typhoid to volunteers from the museum staff. Other exhibits will show developments in medical illustration through the years, the American Registry of Pathology, which plays an important role in both military and civilian medicine, modern museum techniques, and present day laboratory methods.

When Surgeon General Hammond established the Army Medical Museum in 1862, he envisoned a means of collecting material for research and study to improve the knowledge of Army doctors and aid in their efforts to conquer diseases and injuries incident to war. Today the Armed Forces Institute of Pathology is a central laboratory for diagnosis, research, and instruction for the Navy, Air Force, Veterans Administration, and other federal agencies as well as for the Army. The museum is open to the public.

## PUBLIC HEALTH SERVICE

**Consultation Laboratory Services.**—A part of the program of the Communicable Disease Center, Public Health Service, are the laboratory services. Twelve laboratories perform these services. Consultation services are provided for performance of tests that the state and territorial laboratories cannot offer; for study of organisms presenting problems in identification and evaluation, and for assistance in the solution of other laboratory diagnostic problems.

Ten of the laboratories are located at Chamblee, Ga., and provide services in diphtheria, streptococcus, tuberculosis, enteric bacteriology, special bacteriology (for leptospiral infections and identification of isolated organisms other than those referable to specific laboratory units) mycology, serology, intestinal parasites, blood parasites, and medical entomology. The virus and rickettsia laboratory is located at Montgomery, Ala., and the laboratory concerned with plague in man and rodents is in San Francisco. Specimens from physicians and private laboratories can be submitted for analysis through state laboratory directors and should be addressed to the appropriate laboratory at U. S. Public Health Service, Communicable Disease Center, P. O. Box 185, Chamblee, Ga.; Virus and Rickettsia Laboratory, Communicable Disease Center, Route 3, Box 436, Federal Drive, Montgomery 5, Ala.; or Medical Officer in Charge, CDC Activities, Bldg. 19, 14th Ave. and Lake St., San Francisco 18.

**Fewer Marriage Licenses Issued Last Year.**—The marriage license upswing that began in June, 1950, at the start of the Korean War, fell off sharply during the last half of 1951, according to the Public Health Service. The 1,621,159 licenses issued during the entire year of 1951 represented a 4% drop from those issued the year before. The decline in marriage licenses in 1951 was shared by 41 states, with only small increases registered in the remaining 7 states.

**Personal.**—Dr. E. C. Drescher has been appointed chief of the division of commissioned officers succeeding Dr. Eugene A. Gillis, who has been assigned as consultant to the Lebanese Government to assist in furthering the development of public health services in that country. Dr. Drescher is a member of the National Board of Medical Examiners.

## VETERANS ADMINISTRATION

**New Hospital Managers.**—Dr. Bernard L. Allen, at present manager of the general medical and surgical hospital at Clarksburg, W. Va., will become manager of the general medical and surgical hospital at Manchester, N. H. Dr. Lee H. Schlesinger, chief medical officer of the VA Center at White River Junction, Vt., will become manager of the Clarksburg hospital. Dr. Allen will succeed Dr. George O. Pratt as manager at Manchester. Dr. Pratt recently was made manager of the new VA general medical and surgical hospital at Brooklyn.

Dr. George P. Denny, manager of the West Roxbury, Mass., Veterans Administration Hospital, has been appointed manager of the 949 bed general medical and surgical VA hospital that is now under construction in Boston. The Boston hospital is expected to be ready to accept patients sometime in July.

# FOREIGN LETTERS

## BRAZIL

**Albinism in Brothers.**—Dr. Guilherme Curban, in the dermatological service of Prof. Aguiar Pupo, of the University of São Paulo, observed so-called total albinism in two brothers and a sister. Their parents and five other children (four male and one female) do not have this cutaneous anomaly; moreover, none of the other 72 known members of the family have total albinism. The analysis of the family's pedigree, after the Mendelian doctrine, demonstrated that the inheritance of total albinism was caused by a recessive, non-sex-linked gene. In the medical literature, there is a case in which two albino brothers had multiple cutaneous carcinoma, and the albino sister remained free from this disease. As one of the possible causes of the carcinomatous degeneration of the skin of the albino brothers, it was thought that the action of sunlight, to which they were exposed, in their profession, might have an effect, whereas their sister, who was a housekeeper, was not so frequently exposed; however, the action of the sunlight was not sufficient to cause the carcinomatous degeneration, because the four other nonalbino brothers do not have skin cancer, in spite of the fact that they are exposed to as much sunlight as their albino brothers. Two of the nonalbino brothers are almost the same age as the patients and have done country work for a longer time; therefore, they have been exposed to sunlight for a longer time. These facts indicate the necessity of special cutaneous conditions, without which the sunlight does not determine the carcinomatous degeneration, according to Dr. Curban. In his study, it was not possible to determine whether these special cutaneous conditions were represented by the lack of protection against the sunlight consequent to the absence of the skin pigment or if they were determined by a genetic predisposition to cancer.

**Congenital Anomalies of the Rectum.**—Congenital anomalies of the rectum and anus were studied by Drs. Virgílio Carvalho Pinto, Roberto Vilhena de Morais, and José Pinus. The study was based on a series of 33 cases observed in São Paulo. The authors followed the classification proposed by Ladd and Gross. Of 33 cases, 16 belonged to type 3, 7 to type 1, 6 to type 2, and 4 to type 4. Eleven cases of fistula were found, five in males and six in females. In six cases, there were associated anomalies. Usually, these anomalies are surgically treated, types 1 and 2 usually being easily treated. Type 3, when the rectal pouch is low, should be operated on through the perineum; when the rectal pouch is high, an abdominoperineal operation should be performed. A high colostomy should be performed in patients with a high rectal pouch and abdominal distention as well as in patients with advanced cases. In type 4, the rectal segments should be anastomosed or a high colostomy performed, according to the condition of the patient. The operative mortality was 21.4%. In this series, 28 patients were operated on.

## ITALY

**Convention on Mental Tests.**—Professors Gemelli and Gozzano organized a convention in Milan, in order to review problems connected with mental tests, to clarify the relationships in this field between psychologists and psychiatrists, and to assess misunderstandings and abuses derived from the spread of psychology. Many psychologists, psychiatrists, and teachers from Italy and other countries attended the convention.

Professor Gemelli, president of the Catholic University of Milan, who delivered the opening address, advocated that psychology in Italy be recognized and qualified as a profession as has been done in other countries. He expressed concern for the diffusion of mental tests by the nonscientific press, since the tests lose their value when applied to persons who are already aware of their content and their aims.

Professor Rey, from Geneva, reported on psychological tests in cases of pronounced mental backwardness. The speaker distinguished four levels, decreasing in complexity, in the study of the behavior of persons with delayed mental development. At the first level, the person can solve a test involving speech; at the second, the person can solve the test only by imitating actions effected in his presence and involving use of rudimentary language; at the third level, the person can respond by a primitive adaptive reaction to a remote stimulus; and, at the fourth level, the person can react to stimuli only by direct contact.

Professor Pichot, from Paris, reported on methods of evaluating tests and stressed the so-called discriminating factors that make a comprehensive use of the answers possible. This method attempts to establish a simple formula of application; it is less complicated but not less useful than factor analysis. Professor Pichot mentioned an example in which this method was employed in tests given to distinguish insane persons with organic lesions from those without organic lesions.

Professor Meili, from Bern, spoke on analytic intelligence tests, discussing their division into various types, such as tests with numbers, figures, analogies, blanks, designs, and phrases; he also emphasized the importance of the varying scores that the subject obtains. In this way, more can be revealed about the personality of the person than just the intelligence quotient. Professor Ponzo described the organization and the activities of the Italian Society of Psychologists and Psychiatrists of the International Association, the aim of which is to establish coordination between psychiatry and psychological methods.

Professor Gozzano made a critical analysis of the possible means of cooperation between the psychologist and the psychiatrist and asserted that a beneficial collaboration consists of separate examinations of the patient by the psychologist and the psychiatrist, this to be followed by a discussion between them. He added that one of the main tasks of the committee of which Professor Ponzo spoke is the standardization of the tests.

During a meeting of the convention, a motion picture that the United Nations Educational, Scientific, and Cultural Organization (UNESCO) had released to Professor Fulchignoni was shown. Professor Fulchignoni discussed the possibilities and the advantages of the motion picture as a testing medium and emphasized the role that it can play on the tested person with regard to the elements of (1) darkness, (2) rhythmical movement of succession of the images, (3) the "supernormal luminescence," and (4) the progressive disappearance of the images and the sensations aroused.

Dr. Cesa Bianchi, from Milan, gave a report on the use of mental reagents in the study of old age. All psychological activities are diminished between the ages of 67 and 77 years, but the changes in the person's behavior become more pronounced between the 74th and the 78th years. The speaker's observations were limited to persons in a well-defined community and social class; studies in other environments are more difficult because of the heterogeneity of the population. He concluded that his experiences demonstrated that "maladjustment" is mainly observed between the 74th and 78th years.

**New Methods of Antituberculous Vaccination.**—Two reports were read at a meeting of the Medicosurgical Society of Pisa concerning a new method of antituberculous vaccination called "multiple microfoci vaccination." The first report was given by Drs. Buonomini and Poli, who gave vaccinations with essential anatuberculin incorporated in special receivers. Results showed that it was possible to obtain, in 100% of the vaccinated persons, an allergic condition that can be detected with the common tuberculin test and also systemic changes that can be detected with the erythrocyte sedimentation reaction, the differential blood count, and the titration of the level of the serum antibodies (hemagglutination and deviation of the complement). The

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The items in these letters are contributed by regular correspondents in the various foreign countries.

speakers emphasized the advantages of this new method, which is extremely simple and avoids pain, cicatrices, and unpleasant effects.

The second paper was read by Drs. Buonomini and Santopadre, who reported on additional experiments with the "multiple microfoci vaccination," employing Petragnani's anatuberculin. The results proved that with this method it is possible to cause a definite allergic condition in guinea pigs not unlike that obtained with BCG administered by the same procedure. The allergy to tuberculin is preceded, in the vaccinated animals, by a definite and precise bacterial allergy; both the allergy to tuberculin and the bacterial allergy, once established, last for a long time.

## LONDON

**Training Deaf Children.**—According to *The Lancet,* "the education of the general run of deaf children in this country is a failure" if one accepts the standard that "the aim must be to enable all those of sound mentality to join freely, by speech and speech-reading, in conversation with their social and business associates!" This editorial comment was evoked by a letter to *The Lancet* by Miss Edith Whetnall of the Audiology Unit of the Institute of Otology of the University of London. In the letter, it is pointed out that, although the Education Act of 1944 made provision for the teaching of deaf children from the age of 2 years, the necessary facilities for carrying this into effect are generally lacking. A notable exception is the London County Council, which has four nursery schools for the deaf, which are attended by 89 children. Miss Whetnall points out that the age of 2 years is too late to start training if the best results are to be obtained. Training should begin as soon as a child's deafness is suspected by the mother, which is often at the age of 6 to 9 months. Furthermore, "this training must be given continuously by the parents at home under the supervision of a trained teacher of the deaf." The Audiology Unit of the Institute of Otology is now supervising, in this way, the training of 10 children under the age of 18 months and 65 under the age of 5 years. "It is hoped that many will continue their education in ordinary schools." The value of this early training is that it takes advantage of the normal speech learning period that usually ends at the age of 3 years. If such early training were available, many deaf children would eventually be able to attend ordinary schools. An essential part of this training is the use of hearing-aids, so that the child can listen continuously and not only for a few half-hour periods a week. Modern aids are now available that will fit babies. The additional expense of providing such training facilities, including centers, teachers, and aids, would be more than offset by the saving that would be made in special schools. As the president and chairman of The Deaf Children's Society point out in a letter to *The Times*: "If all those deaf children whose residual hearing is usable could have the benefit of really early training, there would be a lessening in demand for places in special schools for the deaf. This would not only mean that the building programme for additional schools for the deaf could be modified, but should ultimately lead to a reduction in the size of classes in existing schools."

**Decline in Diphtheria Immunization.**—The figures for diphtheria immunization shows a disquieting fall. In 1950, only 433,000 children under the age of 5 years were immunized, compared with 574,000, in 1949, a drop of 141,000. The lower birth rate accounted for only 34,000 of this figure. The Ministry of Health, therefore, instituted an inquiry into the matter, the result of which is published in the February issue of the *Monthly Bulletin of the Ministry of Health.* The inquiry was based on interviews with 1,254 mothers of children aged 6 months to 5 years and a postal questionnaire to the medical officers of health in the 58 administrative districts in England and Wales in which the selected mothers lived. The official aim for diphtheria immunization in Britain has been that 75% of children should be immunized before their first birthday. This inquiry shows that in May, 1951, only 47% of children aged 9 months to under 1 year had received as much as their first injection. Of the entire group of children aged 9 months to 5 years, only 69% had completed their immunization. Other interesting data revealed by this inquiry show that the proportion of children immunized at clinics had fallen from just over two-thirds in 1947 to about one-half in 1951. The proportion immunized by the family physician had risen correspondingly. Two-thirds of the children were given injections in the arms. This site seems to cause less discomfort than the legs or buttocks. The mothers gave the following reasons for not having their children immunized: they were "too young," "father does not agree," "do not believe in it," "never heard of it," and "not bothered." In only nine instances did the mother give poliomyelitis as the reason for postponing immunization. The mothers least cooperative in immunization were those with several children, those from poorer households, and the less well educated.

**Motion Sickness Prevention.**—Further data suggesting that scopolamine (hyoscine) hydrobromide is the most effective motion-sickness remedy are presented by Glaser and Hervey (*Lancet,* **1**:490 [March 8] 1952). The experiments were carried out in a large swimming bath with artificial waves; the subjects were 150 soldiers. The preparations used were: *l*-scopolamine hydrobromide, 1 mg.; promethazine (N-[2-dimethylamino-n-propyl] phenthiazine hydrochloride) hydrochloride, 35 mg.; scopolamine hydrobromide, 1 mg., with promethazine hydrochloride, 25 mg.; scopolamine hydrobromide 0.65 mg., with promethazine hydrochloride, 15 mg., scopolamine hydrobromide, 0.65 mg., with promethazine hydrochloride, 15 mg., and mannitol hexanitrate, 50 mg.; and lactose (control). All the preparations containing scopolamine were more effective than promethazine, 35 mg., and 35 mg. of promethazine was no more effective than 25 mg., which was the dose that had been used in a previous experiment. The straight comparison betwen scopolamine hydrobromide, 1 mg. and promethazine, 35 mg., showed that the former protected 92% of 98 men against vomiting and 81% against vomiting and nausea, compared with 64% and 53%, respectively, of 99 men given promethazine. The authors conclude "Except for pethidine, all the likely remedies have been investigated during the last eight years in this country and in North America. No further improvements can be expected except by accident or by a systematic study of basic principles."

**Factory Accidents.**—The report of the chief inspector of factories for 1950 shows a continued decline in the accident rate per 1,000 employed persons. In spite of an increase of 200,000 workers, there was only a slight increase in the number of accidents, 193,059 compared with 192,982 in 1949. The number of fatal accidents was 799 compared with 722 in 1949. One disturbing feature was that the accidents caused by the cleaning of moving machinery by women and young employees rose by 22.5%. This is taken to indicate lack of proper instruction and discipline. Designers and makers of machinery are criticized for not giving enough thought to the elimination of danger points or to the protection of those using the machines. Eye injuries were still common, approximately 200,000. For the first time since lead poisoning became notifiable, in 1895, no fatal accident occurred. Aniline poisoning reached a record low level, but anthrax was commoner among those handling hides and skins.

**Alcoholism.**—A new approach to the problem of alcoholism is outlined in "Alcoholism: A Social Problem," a booklet published by the Advisory Council on Alcoholism. Mrs. Marty Mann, chairman and executive director of the National Committee on Alcoholism, New York, is acting as consultant to the council. It is estimated that there are 86,000 chronic alcoholics in England and Wales and that four times this number are suffering from alcoholism in its earlier and less virulent stages. Many of the chronic alcoholics are permanently unemployed, and, of these, a fair proportion are either in prison or mental hospitals. The basis of the campaign is that alcoholism is a disease and that the alcoholic is a sick person who can be helped.

**Smallpox.**—In view of the under-vaccinated state of Britain, some concern is being aroused in public health circles by an outbreak of variola minor in Lancashire. The first case in which laboratory confirmation was obtained was that of an unmarried woman; the rash appeared on Feb. 1. Until March 8, a total of 80 cases had been reported in the same area. All the early cases were in the direct line of contact, but cases are now being reported that could not be associated with previous ones. So far, there is no report of smallpox in any other part of the country.

An educational campaign is being planned to draw attention to the effects on industrial efficiency and to secure adequate hospital and clinic facilities.

**Metabolic and Radioisotope Ward.**—At a cost of £12,000, which the hospital has provided from its special funds, a special ward for the study of metabolic disorders and the use of radioisotopes in treatment has just been opened at University College Hospital. It includes two rooms, with three beds in each, two rooms, with one bed in each, a special diet kitchen, research laboratories, and an isotope laboratory, with a "cellar" and an observation room.

## NORWAY

**Medical Supervision of Industrial Concerns.**—A scheme recently endorsed by the Norwegian Medical Association, the Norwegian Employers' Association, and the Norwegian Labor Party was reported on at a meeting of the Norwegian Medical Society in Oslo, by Prof. Axel Ström and Prof. Haakon Natvig, who have taken an active part in promoting it. Under this scheme, clerical and manual workers in various industrial concerns and government services are kept under the close medical supervision of physicians representing the elite of the medical profession. Prof. Natvig has undertaken an analysis of the reports sent in by these physicians in 1948 and 1949 with a view to demonstrating the activities and most important findings of this scheme, which, by the autumn of 1951, was in operation in 540 industrial and other concerns employing many thousands of clerical and manual workers. The triple object of this scheme is to discover hitherto unknown cases of disease, to give advice on health problems, and to learn the frequency of certain diseases and conditions affecting health. The form on which the findings of these physicians were to be entered was drafted so as to yield special information about 19 different groups of diseases or anomalies. The tuberculous diseases, for example, formed one of these groups, and it was noted that, in the course of 37,896 medical examinations in 1949, as many as 500 tuberculous cases were found, and 81 of these patients had not hitherto received medical treatment.

Meinicke's reaction test for syphilis did not require a sample of blood, because the citrated blood taken for the sedimentation-rate test was sufficient for both purposes. All the positive Meinicke reactions were verified by other means, and it was remarkable that the percentage of positive reactions in men fell from 2 in 1948 to 0.8 in 1949. In the same period, the figures for women were 1.4% and 0.74%, respectively. This pronounced fall in so short a time reflected the general fall in the syphilis rate in Norway as well as the measures taken in this section of the community to combat syphilis. Another series of observations concerned absence rates because of illness. This rate was much higher for women than for men, the number of days of absence per year because of illness being 11.4 for men and 17.9 for women. But the average duration of each illness was longer for men than for women, with 11.9 days for the former and 9.4 for the latter. Absence because of tuberculosis accounted for 7.5% of the total absence for male manual workers and 9.2% for male clerical workers, the corresponding figures being approximately half for the two groups of female workers. Absence because of accidents and injury was also twice as great among men as among women.

Formerly, contact between patient and physician was usually made on the initiative of the former, often a tardy initiative. Now, contact between the two is often made on the initiative of the physician, who is trained to detect early signs of disease and who has knowledge of the conditions most likely to promote it. Because it is so new, this scheme has been challenged by persons who have asked questions concerning cost, returns, and the balance between cost and returns. Professor Natvig calculates that the cost per head per year is approximately 20 Norwegian kroner ($3.00). As for the returns, he calculates that among 165,000 persons examined under this scheme, 350 may be found to suffer from tuberculosis, 250 from syphilis, and 110 from cancer, every year. Many other major and minor ailments would also be found. It is almost impossible to calculate in figures, in the coin of the realm, the value of such findings. What is impressive is the discovery that when supposedly healthy persons engaged in full-time occupations are systematically examined by physicians familiar with occupational diseases, between 10 and 15% are found to be in need of medical treatment for some ailment.

**Contribution of Sports to the Health of the People.**—During the Olympic winter sports games in Norway in February, a series of 35 lectures on sports and health were delivered by selected speakers. Representing the World Health Organization, Dr. Milton I. Roemer warned against the exclusive culture of "stars" and the neglect of the average person, who is apt to be discouraged as he stands idly by, watching the elite. Roemer pleaded for recreational facilities and a moderate form of physical culture for the older age groups. He criticized those teachers who reward scholars for not missing a single hour at school without regarding the possibility that absence on account of ill health may be laudable in certain instances.

In speaking on the same subject, Dr. Karl Evang, head of the health services in Norway, drew attention to some of the less desirable aspects of sports at the present time, such as the use of various injections to stimulate contestants who do not feel at their best at the starting point. He would like to see the health authorities in different countries adopt such measures as the systematic medical control of all active participants in sporting events, the prohibition of certain kinds of sport, the encouragement of forms of sport that are suitable for weaker persons and the promotion of sporting events that depend on team spirit and cooperative action.

Another speaker, Dr. Gunnar Johnson, who has been in charge of the emergency medical service for Oslo for 17 years, said that the accident rate was relatively high among casual participants in sports as compared with well-trained "stars"; hence, he suggested that untrained persons should not be allowed to take part in sporting competitions. Dr. Ervin Mathé of Prague dealt with his experiences in treating 40,000 skiers between 1946 and 1950. He, too, had found that the trained skier was less prone to accidents than the casual skier. Dr. Henrik Seyffarth dealt with functional neuritis in connection with sports, and he suggested that various diagnoses, such as flat feet, could be traced to functional neuritis, which, in turn, may be the result of faulty muscular action and inadequate relaxation.

**The Negligible Risk of Superinfection with Tubercle Bacilli.**—The thesis recently advanced by Dr. J. Heimbeck that intensive infection of tuberculin-negative persons and superinfection of already infected persons have much to do with the evolution of tuberculosis is severely criticized by Dr. Rolv Höyer Dahl, who is in charge of the large Glittre Sanatorium. In Dahl's opinion, Heimbeck has shown ignorance of statistical techniques in his analysis of his observations. Heimbeck's claim that tuberculosis morbidity was greater among the nurses of Ullevaal Hospital than among the young women in the general population of Oslo is open to the objection that the nurses were under much closer medical supervision than the controls, many of whom may well have suffered from some degree of tuberculosis without their knowledge. Although sputum-positive pulmonary tuberculosis and deaths from tuberculosis are well-defined conditions, tuberculosis morbidity shades off imperceptibly with various degrees, the mildest of which are easily overlooked.

In support of his opinion that the risks of superinfection are negligible, Dahl quotes observations from Glittre Sanatorium, where in 1949 and 1950, a total of 250 patients with cavities were discharged. These patients had been infected between the ages of 15 and 24. In each case, the interval between infection and the appearance of the first cavity was known. This interval was approximately 1 year in 62 patients, 2 years in 46 patients, 3 years in 30 patients, 4 to 5 years in some patients, and 6 to 10 years in still fewer patients. Had superinfection played the serious part allotted to it by Heimbeck, these figures would have shown a more uniform distribution instead of the marked fall from the first year after infection. Dahl concludes that "we can, as far as I see, take the risk of massive infection and superinfection with equanimity. We sanatorium doctors can continue to treat our patients in the same wards. The results
in the sanatoriums with only one-bed wards."

# CORRESPONDENCE

## THE SNOWBOUND "CITY OF SAN FRANCISCO"

*Because of the national interest that was shown when the train "City of San Francisco" became snowbound in January in the Sierra Mountains, the only physician aboard this train was asked to report his experiences. His letter follows.*—ED.

*To the Editor:*—The westbound "City of San Francisco" became snowbound the morning of Jan. 13, 1952, in the high Sierra Mountains at Yuba Pass. An unprecedented snowfall had occurred, and shortly before noon the diesel engine of the streamliner was struck by a snow slide that brought the train to an abrupt stop. The snowfall continued for several days and was estimated to be between 14 and 18 feet, with drifts of 20 to 25 feet, in places even higher. During this time the outside temperature was about 20 degrees above zero, and winds between 40 and 50 miles per hour were recorded.

Very little actual concern was felt for the passengers during the first few hours after the stopping of the train; however, medical problems developed rather rapidly.

In the afternoon of Jan. 13, word reached me that the engineer of an eastbound train had been injured that morning and had been transferred to the westbound streamliner for transportation to Sacramento. The report stated that he was in great pain. My services were volunteered to the conductor in charge of the train; however, he explained that, while the report of the injured man was true, apparently he was not in any great pain and did not require any medical attention at that time. Later events substantiated the conductor's opinion. As a result of this, however, the train crew was aware of the fact that a physician was aboard. In a matter of several hours, four nurses aboard the train volunteered to aid in any way. While their services were not required until the following day, they were immediately available.

During the evening of Jan. 13, several members of the train crew sought my aid for a young man in one of the cars. It was reported that the young man was in considerable pain and, if possible, needed immediate help. I saw the patient, who was a man about 30 years old, and he gave a history of tuberculous osteomyelitis of the right humerus and right tibia. He stated that intense pain was present in this area. The patient was perspiring rather profusely and seemed to be quite agitated. He was apparently afebrile, and, while old scars were present, no draining sinuses were seen and there was no localization of pain. No evidence of abscess formation was noted.

It was then apparent that the man was an addict, and the question was asked, "How much and how often?" The answer was, "One half grain of morphine sulfate every three hours." While it is not my practice to carry any emergency drugs on a vacation, on this particular trip I was to accompany a patient and friend of mine to the coast. He had suffered a rather severe coronary lesion about two years ago and about one year ago n acute attack of gallstone colic. Inasmuch as he was in advanced years, I brought with me a few emergency drugs. These consisted of one 30 cc. vial of morphine sulfate, one vial of penicillin powder, 2 million units, and a small amount of acetylsalicylic acid.

It became obvious that the morphine sulfate would be of great help, since the addict was on board. His personal supply had become exhausted. I was fully aware of my responsibility, which under normal circumstances would have prevented me from giving him any morphine; however, under these conditions, I saw no alternative except to maintain him as best I could with a minimum dosage. It was explained to him that he would be given only sufficient morphine to maintain him until he could be evacuated, and then he would be hospitalized. He eagerly accepted these conditions and was given ¼ grain (15 mg.) subcutaneously. Very little effect was noted, and in approximately one-half hour an additional ¼ grain was given. During the entire time we were snowbound, he was given approximately ½ grain (30 mg.) of morphine sulfate every six to eight hours, and, while it did not relieve his withdrawal symptoms, it did control him sufficiently to prevent him from being a major problem to the other passengers. He was kept in a bedroom, where meals, which he rarely ate, were taken to him.

During the evening and night of Jan. 13, the temperature in the cars began to fall because the fuel oil in the diesel engines was exhausted. The lighting system also began to fail, and most of the cars were without light. Early on the morning of Jan. 14, word reached me that a trainman who was on a relief engine just ahead of the streamliner was ill. It was necessary to leave the train and administer aid to this man who, while not seriously ill, was apparently completely exhausted from overwork. The return to the streamliner convinced me that our situation was grave and that certain policies and practices would have to be carried out for the health and safety of passengers and crew.

Immediately on my return to the train, a committee was formed to attempt to establish some sort of policy. The committee consisted of passengers and certain members of the train crew. Complete cooperation between these two groups was accomplished quickly. The available milk supply was appraised, and it was sufficient to last several days, provided it was used for children only. The food supply was appraised, and, by careful management, the dining car stewards were able to provide adequate if not choice meals. Additional food, consisting of baked beans and spaghetti, was brought in later. Owing to the lack of light, which by now had been shut out by the snow that covered the windows in most of the cars, meals were served at 9:00 a. m. and 3:00 p. m. By 4:00 p. m. the cars were quite dark.

After the lighting system failed, it was discovered that two of the pullman cars were equipped with propane generators for recharging the batteries. In the evening of Jan. 14, these generators were put in operation. Early in the evening many of the passengers became ill. The illness was manifest by a mild hysteria, shortness of breath, and some nausea. A few patients with upper respiratory illness had already been seen, and these were isolated and treated with penicillin. The dosage was restricted to 100,000 units instead of the usual 300,000 or 400,000 to conserve the available supply in case a greater emergency developed. At no time did this become a major problem.

It was decided to place all the ill passengers in the cars with the auxiliary lighting. In the morning of Jan. 15, some of these persons became quite ill. This was manifest by intense headache, nausea, and vomiting, incontinence of bowels in a few of the passengers, and unconsciousness in 15 or 20 of them. It was realized at this time that some carbon monoxide from the propane generators located underneath the cars had gained access to the cars. In some cases, passengers had locked their compartment doors, and it was necessary to use an emergency axe to gain admittance. The affected persons were removed from these cars, the upper vestibule doors were opened, and sufficient air change occurred within a short time to allow the passengers to regain consciousness; and, with the exception of a few residual headaches and some nausea, all passengers recovered in a few hours. It was obvious that the amount of carbon monoxide present was not great at any time. Neither the passengers nor the crew showed any sign of cyanosis, and of course no blood specimens could have been taken.

The problem of hysteria never was of any great importance. The train crew and passengers alike accepted their entrapment, and most persons must have felt that eventual help would reach us. There was, however, much confusion as to actual responsibility, and a complete lack of communication produced a feeling of anxiety. False rumors and reports were extremely common, and it was difficult to accept the reports that were true when means of communication were eventually established. It was indeed unfortunate that none of the passengers carried a portable radio and that the streamliner did not have some sort of radio equipment. False rumors consisted of such things as, "The railroad has abandoned any further rescue attempts," "The Army cannot spare men or equipment—they are busy feeding stranded cattle in Nevada," and "The state highway department will not permit four or five new rotary plows to be used because they are not painted."

It is not difficult to see that with such reports many persons became discouraged and were willing to attempt any sort of rescue by themselves. It became necessary to vigorously oppose any attempt at self-rescue. Of course it would have been impossible to evacuate any passengers during the blizzard. Few could have survived the wind or snow, and, even if they had left the train, there would have been no place to go. With the exception of one person who did leave the train and promptly returned, all other passengers heeded this advice and in general cooperated very well.

The magnitude of the rescue attempt that was occurring could not be realized at that time by either passengers or crew, and it was not until Wednesday morning, Jan. 16, that this became evident. The Southern Pacific Railroad had utilized every piece of available equipment, including rotary plows, relief trains, and all available personnel. This personnel had apparently worked long hours against almost insurmountable odds, and one of the trainmen lost his life in the rescue attempt. The Pacific Gas and Electric Company used their personnel and equipment to the best advantage, and through this effort auxiliary food was supplied on Tuesday, Jan. 15. One of these employees also gave his life in the rescue attempt.

The state highway department of California did a magnificent job of opening a road approximately 6 to 8 miles in length through nearly impassable snow drifts, so that passengers and crew could be evacuated through a single lane to the relief train. There must have been many more examples of heroism and self-sacrifice on the part of hundreds of persons of which we, as passengers, knew nothing. A tremendous lesson of faith in our fellow man is thus learned, and this in any disaster becomes paramount.

The lack of heat caused a great deal of inconvenience; however, by keeping fully clothed and using blankets, sufficient body heat was maintained and no frostbite or other evidence of cold injury occurred.

Personal injuries were held to a minimum by discouraging aimless walking through the train. Most passengers remained either in their seats or in the lounge cars throughout the day and night. Excessive stimulation by alcohol was prevented by closing the bar and discouraging excessive drinking on the part of the passengers who had a private supply. The available gin was used for skin and syringe sterilization.

Civilian disaster occurs with sufficient frequency to formulate the following conclusions. A physician, if present, must accept his responsibilities quickly. Most persons are not impressed by a limited specialty and the title Doctor of Medicine is all they expect. The physician must by reason of his profession be placed in authority, in cooperation with others of authority. Simple public health measures may have to be enforced early in the disaster, such as conservation of food, water, and energy on the part of the crew and passengers alike. Persons with contagious diseases must be isolated quickly to prevent an epidemic. A disease or injury must be diagnosed and treated to the best of one's ability, and frequently improvising of equipment and substitutions of drugs must be made. A physician, by virtue of his profession, is expected to maintain some discipline, to evaluate the extent of the emergency, and to provide adequate if not complete medical service. By his actions and manners he must develop a spirit of confidence in eventual rescue and relief.

Walter H. Roehll, M.D.
Middletown, Ohio.

## NEW ANTITUBERCULOSIS DRUGS

*To the Editor:*—The editorial entitled "New Antituberculosis Drugs," which appeared in the March 22 issue of The Journal, was an excellent summary of the information now available; however, more could have been said concerning the caution necessary in the evaluation of these drugs. I should like to call attention to the last four paragraphs of a statement recently prepared by the American Trudeau Society, the medical section of the National Tuberculosis Association:

"At present there is no reason to believe that the fundamentals of therapy of tuberculosis should be altered in any way when isonicotinic acid hydrazide is employed. Patients receiving the drug should be hospitalized for careful observation. They should be studied in institutions where potential toxic manifestations may be watched for most carefully and where effects upon the course of the underlying tuberculosis may be carefully observed so that suitable alterations of therapy may be initiated when indicated. Routine laboratory precautions should include frequent blood counts and urinalyses, neurologic examinations, and tests for renal and hepatic insufficiency.

"The introduction of a new drug in the therapy of tuberculosis is likely to raise more questions for a few years than it will answer. There is no knowledge at the present time that isonicotinic acid hydrazide or its isopropyl derivative will accomplish more than has been accomplished with streptomycin and PAS. It may prove to be an additional drug of great value. It may be years before its exact contribution to the therapy of tuberculosis can be assessed accurately. A large reservoir of undetected and untreated cases of active tuberculosis exists throughout the United States, and there is every expectation that, in spite of the more effective chemotherapy of tuberculosis currently available, the need for hospitalization in institutions with qualified personnel and adequate laboratory facilities will increase rather than decrease. There is at present no basis for expecting that isonicotinic acid hydrazide, or any other drug available, can safely be counted upon to reduce the duration of hospitalization. Rather, in most instances, at least, it may lead to prolongation of hospital treatment since effective chemotherapy may facilitate desirable forms of therapy not otherwise possible.

"It should be emphasized strongly that, with more numerous effective antituberculous compounds available in the treatment of tuberculosis, more intensive case finding than ever will be indicated. Only through this means can maximum advantage be taken of improvements in therapy.

"After a review of available data on the action of isonicotinic acid hydrazide and its isopropyl derivative upon the tubercle bacillus in vitro, and upon the course of experimental tuberculosis in animals and clinical tuberculosis in man, it may be stated that their demonstrated action, although highly encouraging, appears in no way to alter the basic principles of the treatment of tuberculosis as presently understood. Much more work will need to be done to ascertain the exact place of these drugs in the treatment of the disease. With several carefully coordinated studies in prospect, it is anticipated that further information will accumulate rapidly."

Floyd M. Feldmann, M.D.
Acting Executive Secretary
American Trudeau Society
1790 Broadway, New York.

## MEDICAL TOURISTS IN GREAT BRITAIN

*To the Editor:*—I am writing on behalf of the London Hospital Medical Society, to inquire whether you could furnish the names of any American physicians who might be touring the United Kingdom this year. We would like to be able to invite some of them to come and speak to us at the London Hospital.

In the past we have very much enjoyed the visits of our American colleagues, and we would like to hear more from them this year if possible.

R. C. Blake, Secretary
The London Hospital Medical Society
Turner St.
London, E. 1.

# BUREAU OF LEGAL MEDICINE AND LEGISLATION

## MEDICOLEGAL ABSTRACTS

**Nurses: Tuberculosis As An Occupational Disease.**—The petitioner, a registered nurse, filed a claim for compensation under the occupational disease provisions of the workmen's compensation law, alleging that she had contracted tuberculosis out of and in the course of her employment as a nurse in the Medical College of Virginia Hospital. From an order denying an award of compensation, the petitioner appealed to the Supreme Court of Appeals of Virginia.

Section 65-42 of the Virginia Code defines an occupational disease as a disease arising out of and in the course of the employment but provides that no ordinary disease of life to which the general public is exposed outside of the employment shall be compensable except when it follows as an incident of an occupational disease. Section 65-43 provides that "The following diseases and conditions shall be deemed to be occupational diseases, and even they shall not be so considered unless they are in fact occupational within the meaning of the term occupational disease as defined in the preceding section: . . ." then follows a schedule with 15 numbered paragraphs, none of which lists tuberculosis by name, but paragraph 11 thereof provides as follows: "Infectious or contagious diseases contracted in the course of employment in or in immediate connection with a hospital or sanitarium in which persons suffering from such diseases are cared for and treated. . . ." This was the provision on which the petitioner based her claim.

Tuberculosis is a contagious disease, and, said the court, it is also an ordinary disease of life to which the general public is exposed. If only the provisions of section 65-42 are considered, the conclusion would be necessary that claimant's tuberculosis is not compensable since it did not follow as an incident of occupational disease, but when that section and section 65-43 are considered together, it seems fairly certain that it was not the purpose of the law to exclude from compensation every infectious or contagious disease to which the general public is exposed. Reading the two sections together, we think it was intended to provide that infectious or contagious diseases, including tuberculosis, when contracted under the circumstances stated in paragraph 11, and when in fact occupational as defined in section 65-42, i. e., when arising out of and in the course of employment, as further defined in that section, shall be compensable.

It is clear that the legislature did not intend, by the enactment of the occupational disease law, to provide a general system of health insurance. It provided compensation only for occupational diseases and carefully spelled out what was required to fill that description. It provided that no ordinary disease of life to which the general public is exposed outside of the employment shall be compensable. Certain named diseases were made compensable but only if they arose out of the employment as that term is defined in the law. Certain unnamed diseases, embraced in the general description of infectious or contagious diseases were included, provided (1) they are in fact occupational as defined, (2) they were contracted in the course of employment, (3) in or immediately connected with a hospital or sanitarium, and (4) in which persons suffering from such diseases are cared for and treated. No compensation is provided for infectious or contagious diseases that do not meet those terms. If a contagious or infectious disease not specificially named in the statute is contracted in the course of employment in a factory, in a store, in a restaurant, in a garage, or any other place where men and women are employed, it it not compensable, but treated as one of the ordinary diseases of life to which the general public is exposed outside of that employment. Thus the broad provision of section 65-42 that no ordinary disease of life shall be compensable is qualified and an exception made with respect to infectious or contagious diseases if, but only if, they meet the four requirements stated above.

Among those requirements are that the disease must be contracted in a hospital or sanitarium and that hospital or sanitarium must be one in which persons suffering from that disease are cared for and treated. In its context we think this means a hospital or sanitarium in which persons suffering from such disease are cared for and treated as a general practice or as a business, not one that cares for and treats that disease only in an emergency and not one that would decline to admit one suffering from that disease if he came to be treated only for that disease. If it is desirable to extend the provisions of the act to all hospitals, or even other places of work, where contagious diseases may be contracted as a result of working there, that is the business of the legislature. We must take the statute as we find it, gather the legislative intent from the words used and give effect to the purposes thus ascertained. The Supreme Court of Appeals concluded that the defendant is not a hospital in which tuberculosis is cared for and treated in the sense in which that phrase is used in section 65-43 (11), and accordingly, the order denying an award was affirmed. *Van Geuder v. Commonwealth, 65 S. E. (2d) 565 (Virginia 1951).*

# MEDICAL MOTION PICTURES

**Integrative Aspects of the Nervous System:** 16 mm., color, sound, showing time 57 minutes. Produced in 1950 by the United States Army. Procurable on loan from the Surgeon of the Army Area in which the request originates.

The mechanism by which the nervous system functions has long been vaguely understood, but it has only been in the last few years that experimental work has clarified the issues. This has been mainly in the fields of mathematics and physics. Starting with the hypothesis of reverberating circuits, the action of the neuron circuits has been found to be similar to servomechanisms. Feed-back mechanisms are not new concepts, especially in the fields of radar and anti-aircraft guns. "Scanning" mechanisms are also by no means new, as television can attest.

This excellent film graphically portrays the means by which the nervous system is believed to make use of these well-known devices. Starting with the simple stretch reflex the picture goes on to describe the feed-back mechanism in the nervous system. The manner in which feed-back works is exemplified. In action, it is applied to the function of the cerebellum, basal ganglions, and the reticular area in the midbrain. The mechanism is then related to the clinical aspects of disordered movement, such as is seen in Parkinson's disease and cerebellar lesions.

Experimental methods by which certain postulates were reached are portrayed in animals. Decerebrate rigidity is produced, the vestibulospinal tract is stimulated by means of a stereotaxic apparatus, and the tonic neck reflexes are demonstrated, among other things.

An understanding of feed-back is quickly reached through its graphic portrayal in animated drawings, which, in turn, are supported by verbal explanations. Although this material could probably be assimilated by some persons through reading, there are others who do not have the knowledge of mathematics or physics to make it comprehensible. For such persons the film is invaluable. The film was made under the direction of an authority on mathematics and therefore represents a mature point of view rather than that of an enthusiast.

The showing time is over 50 minutes, but it seems shorter, because the film has obviously been carefully prepared. It is of the utmost teaching value, especially in relation to modern concepts of nervous activity. The film represents a great deal of advanced work in experimental nervous physiology and is recommended for medical students and neurologists. It should make clear to them in a few minutes what would otherwise require hours of laborious reading under a trained instructor.

There are some minor flaws, such as an occasional lack of contrast between the animation and its background, which makes some of the words hard to read. In other places, there are slight defects in lighting.

For those interested in the feed-back mechanism itself and its correlation with the nervous system, this motion picture is highly recommended.

# MEDICAL LITERATURE ABSTRACTS

## UNITED STATES

### A.M.A. Arch. Otolaryngology, Chicago

55:1-100 (Jan.) 1952

- *Calcification in Laryngeal Cartilages. J. H. Vastine II and M. F. Vastine.—p. 1.
- Hemorrhage in Nose and Throat. H. P. Harkins.—p. 8.
- Rhinoplastic Approach to Certain Rhinological Procedures. L. J. Feit.—p. 12.
- Mechanism of Shadow Hearing. K. Tschiassny.—p. 22.
- Effects of Oxygen Deprivation upon Structure of Organ of Corti. M. Lawrence and E. G. Wever.—p. 31.
- Closure of Tympanic Membrane Perforations by Trichloroacetic Acid Cauterization: Report of Cases. L. A. Adams.—p. 38.
- Fibrous Dysplasia of Facial Bones and Paranasal Sinuses. H. Brunner.—p. 43.
- Poliomyelitis and Laryngologist. M. W. Simmons.—p. 55.
- Hearing Loss in Children with Cleft Palates. J. Sataloff and M. Fraser.—p. 61.
- Otitis Media and Complications. B. R. Dysart.—p. 70.

**Calcification of Laryngeal Cartilages.**—Lateral films of the neck were obtained in five pairs of identical twins. Their ages ranged from 13 to over 70 years. It was found that the deposition of calcium in the laryngeal cartilages is strikingly similar in identical twins. It is reasonable to assume, therefore, that the deposition of calcium in the laryngeal cartilages is hereditarily determined and not influenced by or due to any acquired factor, such as disease, mineral deficiency, or metabolic disturbance. The configuration of the hyoid bones and of the cervical spines is also similar in identical twins. Commenting on these observations the authors say that in a previous report they had presented evidence that the size, shape, and contour of the skeletal system is predetermined. Even the most minute detail of ossification is under the direct influence of the genes. This is evident when a close comparison of the roentgenograms of each of the respective bones of identical twins is made. This amazing similarity in the bony structure may prove to be the most accurate criterion for differentiating homozygotic from dizygotic twins.

### A.M.A. Arch. Pathology, Chicago

53:1-102 (Jan.) 1952

- Nephrotoxic Globulin Nephritis: I. Course After Single Intravenous Injection. R. W. Lippman, H. U. Marti and D. H. Campbell.—p. 1.
- Pathological Changes in Acute and in Protracted Vitamin A Deficiency: Their Prevention by "Lard Factor." H. C. Stoerk, H. Kaunitz and C. A. Slanetz.—p. 15.
- *Induction of Thyroid Cancer in Rat by Radioactive Iodine. R. C. Goldberg and I. L. Chaikoff.—p. 22.
- Comparison of Aging Processes in Renal and Splenic Arteries in the Negro and White Races. F. P. Handler, J. O. Blache and H. T. Blumenthal.—p. 29.
- Cortisone and Matrix Formation in Experimental Scorbutus and Repair Therefrom, with Contributions to Pathology of Experimental Scorbutus. S. B. Wolbach and C. L. Maddock.—p. 54.
- Role of Arachnoid Granulation in Development of Meningioma. L. Wolman.—p. 70.
- Studies on Methods of Staining Islet Cells of Pancreas. S. A. Bencosme.—p. 87.

**Thyroid Cancer Caused by Radioactive Iodine.**—In earlier investigations Goldberg and Chaikoff observed suspicious cytological changes in the thyroid parenchyma of rats killed at various intervals after they had received single injections of radioactive iodine ($I^{131}$). In order to evaluate the significance of these changes, a study of the late effects of ionizing radiations emitted by this isotope was undertaken. The authors had already noted the presence of thyroid neoplasms in two rats that were killed 18 months after a single injection of 400 $\mu$c of $I^{131}$. Although these growths resembled thyroid cancers in man, the question of their being cancerous was left open, because criteria other than the histological appearance of the tumors were lacking. The experiments presented in this paper provide conclusive evidence that radioactive iodine can induce thyroid cancer in the rat. Thyroid cancer was encountered in 7 of 25 rats from 18 months to 2 years after they had received single injections of 400 $\mu$c of $I^{131}$. In five of the seven animals with thyroid cancers metastatic lesions were found in one or more of the following tissues: lung, bone, adrenal gland, lymph node, and subcutaneous tissue. Evidence that thyrotropic hormone is not the causative agent of the cancers observed in these rats was indicated by the fact that similar malignancies did not develop after prolonged treatment with propylthiouracil.

### American Journal of Medical Sciences, Philadelphia

222:613-732 (Dec.) 1951

- Functional Restoration of Paralyzed Diaphragm Following Cross-Union of Vagus and Phrenic Nerves. J. O. Brown and V. P. Satinsky.—p. 613.
- *Confusion Between Acute Myocardial Infarction and Acute Pulmonary Embolism, Clarified by Autopsy Months After Death: Important Medicolegal Problem. S. A. Levine and J. P. Vazifdar.—p. 623.
- Major Surgery in Patients with Healed Myocardial Infarction. C. A. Hannigan, F. Wroblewski, W. H. Lewis Jr. and J. S. LaDue.—p. 628.
- Irreversible Post-Hypoglycemic Coma. J. F. Fazekas, R. W. Alman and A. E. Parrish.—p. 640.
- *Use of Quinidine in Established Auricular Fibrillation and Flutter. D. Holzman and M. G. Brown.—p. 644.
- Induced Intermittent Claudication. E. C. Texter Jr., W. Redisch and J. M. Steele.—p. 653.
- Electrocardiographic Changes in Poliomyelitis. Analysis of 150 Cases. M. P. Manning and P. N. G. Yu.—p. 658.
- Speranskii Method of Spinal Pumping in Treatment of Arthritis. J. H. Robbins and P. H. Settlage.—p. 663.
- Clinical Experience with Anticoagulent, Tromexan. M. R. Bronstein and E. Witkind.—p. 677.
- Effects of Intravenous Administration of Gelatin Solution (10%): Laboratory Study on 24 Patients with Chronic Disease. R. D. Scott and J. Ryan.—p. 686.
- Fallopian Tubes. F. B. Block.—p. 697.
- Physiology of Adrenal Cortex in Infancy and Childhood. A. M. Bongiovanni.—p. 710.

**Myocardial Infarction and Pulmonary Embolism.**—Two almost identical cases are reported in which death was presumed to have occurred from coronary thrombosis. The two men, aged 37 and 45, five weeks or seven months previously had sustained a traumatic injury of the leg. Diagnosis of acute coronary thrombosis with anterior myocardial infarction had been based on electrocardiograms taken a short while before death, and a postmortem examination had not been performed. In both cases litigation developed as to whether the death was due to the accident. Differential diagnosis between acute coronary thrombosis with myocardial infarction and acute pulmonary embolism is quite difficult; changes in the electrocardiogram may be erroneously interpreted as indicative of anterior myocardial infarction, while more commonly an acute pulmonary embolism may simulate posterior myocardial infarction. The authors therefore suggested that the bodies be disinterred to seek for phlebitis and pulmonary embolism as the probable causes of death. This was found to be the case in each instance, and the widows, who probably otherwise would have lost their law suits, then obtained their just compensation. Disinterment of the body and examination of the heart and lungs even months after death may serve as a valuable and decisive means to determine the cause of death and to solve equitably a controversial medicolegal problem.

**Quinidine in Established Auricular Fibrillation.**—Fifty-five unselected patients with established fibrillation and two with established flutter were treated with quinidine in the attempt to restore normal sinus rhythm. On the first day of treatment 0.2

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Titles marked with an asterisk (*) are abstracted.

gm. of quinidine was given orally every 2 hours for seven doses, beginning early in the morning; the individual dose was then increased by 0.1 gm. daily until the patient received 0.5 gm. every two hours for seven doses. If restoration to normal sinus rhythm occurred at any time, the patient was placed on a maintenance dose of 0.2 gm. every 6 hours, usually for a month, following which quinidine was discontinued completely. In patients who did not regain normal rhythm the average total dose was 6.1 gm. given over a period of 3.1 days, as contrasted with 3.8 gm. for 2.4 days in those with normal sinus rhythm successfully restored. Of the 57 patients, 30 had normal rhythm successfully restored, but only 14 maintained it over an average follow-up period of 6 months. The factors that operate against successful restoration are long duration of the arrhythmias, the presence of cardiac enlargement or a history of cardiac failure, and the presence of rheumatic heart disease. Occasionally, a second attempt is successful when the first has failed. Of the 57 patients, 28 had symptoms of cinchonism, which only occasionally were severe enough to necessitate discontinuing the drug. None of the manifestations of drug idiosyncrasy, such as syncope convulsions, collapse, respiratory embarrassment, or sudden death, were observed. Significant electrocardiographic changes consisted in slowing of auricular impulse formation, with a tendency to regular ventricular response; increase in intraventricular conduction time; increase in intraauricular conduction time in patients whose normal rhythm was restored (enlargement of the P waves) and evidence of ventricular irritability.

## American Journal of Obstetrics & Gynecology, St. Louis

62:1187-1416 (Dec.) 1951. **Partial Index**

*Physiologic Study of Acute Renal Failure, with Follow-Up Observations. L. C. Chesley and W. H. McCaw.—p. 1187.
Malignant Tumors Involving Vulva. C. G. Collins, J. H. Collins, E. W. Nelson and others.—p. 1198.
Vulval Cancer: Critical Review. W. K. Diehl, J. W. Baggett and J. H. Shell.—p. 1209.
Basal-Cell Carcinoma of Vulva: Report of Five Cases and Review of Literature. A. M. Siegler and H. J. Greene.—p. 1219.
*Labor and Delivery After Cesarean Section. A. L. Wilson.—p. 1225.
Chronic Ulcerative Colitis and Pregnancy. M. S. Kleckner Jr., J. A. Bargen and E. A. Banner.—p. 1234.
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Use of Dilute Infusion of Pituitrin in Obstetrics. J. S. Labate and A. J. Barbaro.—p. 1292.
Efficiency of Placental Exchange in Human Subject at Time of Delivery as Determined by Radiosodium Tracer Techniques. I. H. Kaiser and I. M. Cushner.—p. 1300.
Surgically Removed Ovary. J. E. Hall.—p. 1307.
Spinal Anesthesia in Obstetrics. N. M. Bittrich and J. S. Rangatore. —p. 1314.
Effect of Conization of Cervix on Subsequent Pregnancy: Preliminary Report. P. K. Champion and N. J. Thompson.—p. 1321.
Management of Abortion at the Cook County Hospital. A. Webster. 1327.
Complete Perineotomy. E. D'Errico and R. P. McKeogh.—p. 1333.

**Acute Renal Failure.**—Chesley and McCaw point out that acute renal failure is of particular importance in obstetrics, because pregnancy and delivery involve complications that may produce renal failure, including severe toxemia, abruptio placentae, shock caused by hemorrhage, or septic abortion. Isoimmunization to the Rh factor also predisposes to renal failure should the patient be transfused with Rh-positive blood. The authors reviewed the laboratory records of 114 patients whose blood nonprotein nitrogen levels exceeded 60 mg. per 100 ml. Of these, 25 were accepted as having acute renal failure, the chief criterion for the diagnosis being acute and severe reduction in the concentration of urea and creatinine, together with a history of prolonged shock or some other factor known to be associated with the syndrome. Other criteria were fixation of the urinary specific gravity, presence of heme pigments in the urine, oliguria, and transient hypertension. The most frequent precipitating factor was abruptio placentae. Eight of the 25 patients died, probably none from renal failure per se. The most frequent cause of death was prolonged, irreversible shock, which had produced the renal failure in these cases. It was found that in acute renal failure, the kidney concentrates urea and uric acid only one to three times, and creatinine and potassium from two to five times. The sodium concentration in the urine approaches that in plasma because of the inability of the kidney activity to reabsorb it. The inability of the kidney to concentrate the nitrogenous wastes and potassium persists into the third week. Diuresis antedates recovery of concentrating power. The renal tubules lose the capacity for the active reabsorption of uric acid, which explains why the uric acid clearance is disproportionately high during recovery from acute failure. The tubules may excrete potassium in acute renal failure. The clearances of *p*-aminohippurate and inulin and the maximal tubular excretory capacity for *p*-aminohippurate are greatly depressed, and return to normal only over a period of months. The authors believe that glomerular filtration is impaired for weeks.

**Labor and Delivery After Cesarean Section.**—Wilson found that in his service about 1.5% of the pregnant women have a history of a previous cesarean section. He reviews 943 consecutive viable pregnancies following cesarean section observed from 1932 to 1950. There were 15 cases of uterine scar rupture, in 9 of which it was complete. There was no maternal mortality attributable to rupture of a cesarean scar, but there was one maternal death from hemorrhage following an elective repeated cesarean section. The transverse lower segment type of cesarean section is safest for future pregnancies. There were no infants lost due to rupture of a low transverse scar, and no complete ruptures of this type. Maternal morbidity is 7½ times greater with repeated cesarean sections than in vaginal delivery. The rise to 41% vaginal deliveries after previous cesarean section in 1950 with no maternal mortality or morbidity, no ruptures, and no fetal mortality indicate the increasing safety of this method. In 50% of the cases of scar rupture there had been fever or infection following the previous section. Palpation of the uterus abdominally or subjective tenderness are not reliable indicators of impending rupture. Of six repeated cesarean sections for "impending rupture," four showed no evidence of rupture of the scar. All seven fetal deaths occurred with complete rupture of the classic type of scar. Three of the infants were lost at rupture before the 39th week. If all patients who had had a previous cesarean section were routinely subjected to another section two weeks before term, there would still be a few spontaneous ruptures prior to this time. If the previous classic scar appears intact and sound at the second section, a low transverse incision should be made. Routine placentography is suggested because placental implantation over the scar area is presumably more conducive to rupture. The character of labor, position, size of the fetus, and pelvic structure may be deciding factors as to mode of delivery, regardless of the scar of a cesarean section.

## American Journal of Surgery, New York

83:1-124 (Jan.) 1952

Branchial Cysts and Fistulas: Study of 75 Cases Relative to Clinical Aspects and Treatment. C. E. Sedgwick and J. F. Walsh.—p. 3.
Duodenal Diverticula. P. Glasier and A. J. Corbett.—p. 9.
Carcinoma of Ampulla of Vater. G. L. Beale and A. S. Trulock Jr. —p. 20.
Nephrocalcinosis. M. M. Schapiro, J. R. Duron and A. Midence.—p. 26.
Submucous Lipoma of Stomach. J. M. King and G. F. Woelfel.—p. 32.
Primary Carcinoma of Fallopian Tube. M. E. K. Johnson and T. G. Amos.—p. 35.
Ovarian Pregnancy. R. E. Taber and E. S. Crossett.—p. 41.
*Fatal Pulmonary Emboli: Study of 130 Autopsy-Proven Fatal Emboli. J. J. Byrne and E. E. O'Neil.—p. 47.
Value of Parenteral Nutrition in the Poor Risk Surgical Patient. C. O. Rice, P. Bauer and J. H. Strickler.—p. 50.
Multiple Primary Malignant Tumors Involving Colon and Rectum: Report of 94 Cases. H. E. Bacon and M. C. Tavenner.—p. 55.
Complications of Abdominal Colostomy. W. Birnbaum and P. Ferrier. —p. 64.
Treatment of Massive Rectal Prolapse. C. B. Ripstein.—p. 68.

**Fatal Pulmonary Emboli.**—A study was made of 130 cases of autopsy-proven fatal pulmonary emboli occurring at the Boston City Hospital from 1942 through 1949. Only emboli believed to be the immediate cause of death were studied, eliminating a large group of cases in which incidental pulmonary emboli were found. Conditions associated with development of fatal emboli were cardiac disease and postoperative states in 48 and 33 cases, respectively, hemiplegia in 22 cases, neoplasm in 11 cases, ambulatory phlebitis in 8 cases, and miscellaneous diseases in 8 cases. It is of interest that no obstetric cases are represented in the series. Each group of diseases was analyzed further, with special attention given to the source of the emboli and the presence of leg signs whenever the leg veins were the source. In 91% of the cases the emboli came from the leg veins, and the majority of these patients had signs of phlebitis of the legs. Eight of the patients had had some form of surgical interruption of the deep veins to prevent embolization. Investigation of the reasons for the failure convinced the authors that only division of the veins with removal of a segment of the vein can prevent recanalization.

## Am. J. Syphilis, Gonorrhea and Ven. Dis., St. Louis

### 36:1-100 (Jan.) 1952

Cultivation of Treponemes with Preservation of Characteristic Morphology. N. R. Rose and H. E. Morton.—p. 1.
Morphologic Variation of Treponema. N. R. Rose and H. E. Morton. —p. 17.
Studies on Life Cycle of Spirochetes: IX. Studies in Filterable Phase of Spirochetes. M. Haanes, E. D. DeLamater and V. R. Saurino.—p. 38.
Presumptive False Positive Serologic Reactions for Syphilis in Central America: I. Incidence and Distribution. G. Stout, M. Guzmán and N. S. Scrimshaw.—p. 41.
Id.: II. Relation to Serum Ascorbic Acid, Riboflavin, Alkaline Phosphatase, Carotene, and Vitamins A and E in Blood Serum. G. Stout, M. Guzmán and N. S. Scrimshaw.—p. 49.
Id.: III. Relation to Serum Protein, Albumin, and Globulin. G. Stout, J. Méndez, M. Guzmán and N. S. Scrimshaw.—p. 55.
Id.: IV. Relation to Positive Reactions for Cephalin Cholesterol (Hanger) Flocculation Test. G. Stout, F. Aguirre and N. S. Scrimshaw.—p. 60.
Studies in Cardiovascular Syphilis: II. Methodologic Problems in Evaluation of Therapy. P. M. Densen, P. Padget, B. Webster and others. —p. 64.
*Effect of ACTH on Jarisch-Herxheimer Reaction and on Lesions of Experimental Syphilis in Rabbit. W. H. Sheldon, A. Heyman and L. D. Evans.—p. 77.
Therapeutic Paradox (?) in Cardiovascular Syphilis. C. F. Mohr and R. D. Hahn.—p. 82.
Primary Cutaneous Infection with Neisseria Gonorrheae. M. Marmell. —p. 88.
Syphilitic Interstitial Keratitis After Five Years of Seronegativity: Case Report. R. C. V. Robinson.—p. 92.

**Effect of Corticotropin on Jarisch-Herxheimer Reaction.**—Multiple skin syphilomas were produced on the backs of six male albino rabbits by intradermal inoculation of 0.1 ml. of a saline suspension of the Nichols strain of Treponema pallidum. A few days after the appearance of the lesions one syphiloma was excised as a control and corticotropin (ACTH) in daily doses of 5 mg. per kilogram of body weight was administered intramuscularly in three divided doses per day. On the third day of corticotropin therapy one and sometimes two of the skin lesions were excised. Immediately afterwards, three doses of 10,000 units of crystalline penicillin in aqueous solution were given intravenously at three hour intervals, while corticotropin therapy was continued for another day. The remaining syphilomas were excised at two hour intervals following the initial injection of penicillin. Results showed that the administration of corticotropin did not prevent the occurrence of the morphological manifestations of the Herxheimer reaction, which consisted of transient acute inflammatory cell infiltration in the syphilitic lesion. The changes were similar to those observed in the syphilitic lesions of human beings and animals receiving penicillin alone. In fact, the hormone caused a diminution of the inflammatory cell infiltration in the syphilitic lesions, and thus created a background against which the acute inflammatory response associated with the Herxheimer reaction became more obvious. The failure of corticotropin to alter the Herxheimer reaction does not disprove that this phenomenon is a hypersensitivity reaction, but suggests that corticotropin does not interfere with the basic mechanism of the delayed type of hypersensitivity reaction, while it may exert an inhibiting effect on the associated inflammatory response. The long-term effect of corticotropin on untreated syphilitic infection in rabbits was studied in another group of six animals infected by intradermal inoculation of T. pallidum. In addition two of these animals had been given intravenously 3 cc. of the same suspension of T. pallidum. In two of the six animals corticotropin therapy was begun on the day of the appearance of the skin lesions and was continued for 30 days, while in four animals the drug was administered 4 days prior to inoculation and was continued for 90 days. Results indicated that prolonged administration of large doses of corticotropin to rabbits with experimental syphilis did not alter the host response sufficiently to change the natural cause of infection. The hormone diminished, but did not completely suppress, the intensity of the inflammatory cell response in the syphilitic lesions, but the proliferative reparative processes in the lesions were distinctly inhibited. There was apparently no significant increase in the number of demonstrable treponemas in the lesions.

## *American Surgeon, Atlanta, Ga.*

### 18:1-100 (Jan.) 1952

Use of Von Petz Clamp in Combined Abdominoperineal Resection of Rectosigmoid. J. D. German.—p. 3.
Thoracoplasty in Treatment of Pulmonary Tuberculosis. O. C. Brantigan. —p. 6.
Evaluation of Lumbar Sympathectomy. W. H. Kisner and H. Mahorner. —p. 30.
*Congenital Arteriovenous Anomalies of Cerebral Cortex, Their Surgical Treatment. H. S. Swanson.—p. 36.
*Xeroderma Pigmentosum. W. S. Brockington and R. W. Postlethwait. —p. 50.
Statistical Study of Tuberculosis of Bones and Joints in Children. S. W. Allred and W. L. Minear.——p. 58.
Stab Wounds of Heart and Pericardium Producing Acute Cardiac Tamponade: Treated by Aspiration of Pericardium; Report of Cases. C. V. Menendez.—p. 66.
Operation for Difficult Sliding Hernia of Large Bowel. A. R. Koontz. —p. 78.
Modified Technic for Total Gastrectomy with Formation of Food Pouch from Jejunum. C. J. Hunt and J. S. Cope.—p. 85.

**Surgical Treatment of Congenital Arteriovenous Anomalies.**—Surgical treatment of a congenital arteriovenous anomaly of the cerebral cortex is feasible when roentgenograms and angiograms indicate that it may be removed without additional incapacitating neurologic disabilities. On the other hand, coagulation or ligation of the superficial vessels may increase the size and mass of the arterial anomaly and increases the possibility of hemorrhage. Extracranial ligation of the carotid artery is not advisable, since collateral circulation lessens the normal circulation to the remaining areas of the brain. Once the intervention is justified, the main technical difficulty during removal is to control potentially massive hemorrhage without injuring the adjacent uninvolved cortex. If this appears impossible, the operation should be discontinued. Exploration of the cortex with needles is contraindicated. Careful and complete control of the arterial supply is best begun proximally, and in most instances it is obtained with silver clips or silk ligatures doubly tied. Low voltage cauterization may be sufficient for small arteries. After a complete superficial arterial denudation, a cortical incision is made and each incoming artery branch is controlled. When hemorrhage from the draining veins ensues, and its control is almost impossible because identification of the bleeding vessels is very difficult, the only recourse is quick enucleation of the mass with prompt control of the deep arterial supply. The mass is rolled distally in the direction of the draining veins. Bleeding that occurs at this stage is controlled by direct pressure, and the draining veins are ligated. If thrombosis occurs postoperatively, anticoagulation therapy may be effective. After six or eight weeks comparative angiograms should be carried out routinely. During one intervention Gardner's method of exsanguination was attempted without assistance in diminishing hemorrhage. In another intervention for a very large arteriovenous aneurysm the author resorted to total spinal anesthesia in an attempt to minimize the technical problem. Scalp hemostasis or control of dural oozing was not needed, total removal of the large mass was effected with extreme ease, and less than one pint of blood was lost. It is suggested that total spinal anesthesia may become a good adjuvant in other surgical interventions in which an adequate control of hemorrhage is necessary.

**Xeroderma Pigmentosum.**—Xeroderma pigmentosum is reported in 13 members of five generations of a family. No medical description or death certificate is available for the cases that occurred prior to 1920, but reliable information was given by the grandmother of a 5-year-old child who died in 1948. She had observed all these cases except the first and the second, but was told that these two, her uncle and aunt, had died of the same disease at the ages of 5 and 3. The last five patients have died since 1941. Hyperkeratotic areas, photophobia, conjunctivitis, ectropion, or blindness justified the diagnosis of xeroderma pigmentosum with malignant degeneration. There was evidence that the disease had been transmitted by simple recessive genes rather than by sex linkage. No treatment was effective. Excision, sometimes followed by full-thickness grafts, was palliative, but malignant ulceration developed in other areas. Podophyllotoxin controlled some areas of carcinoma temporarily. Treatment with x-rays is contraindicated in that severe reactions occur in the surrounding skin and new lesions appear. As soon as the disease is recognized, exposure of the skin to light must be prevented. *p*-Aminobenzoic acid may be used as a protective ointment; large intake of vitamins seems to be of some value.

## Angiology, Baltimore

2:425-604 (Dec.) 1951

Rational Priciples in Treatment of Spontaneous Arterial Occlusions. R. Leriche.—p. 430.
*Chronic Edema of Lower Limbs. F. Martorelli.—p. 434.
Phenomenon of Stress in Relation to Human Essential Hypertension. G. de Takats.—p. 461.
Present Status of Treatment of Frostbite. H. B. Shumaker Jr.—p. 476.
*Intrasaccular Wiring of Abdominalarteriosclerotic Aortic Aneurysm by "Pack" Method. R. R. Linton.—p. 485.
Present Status of Arteriography of Peripheral Vessels. F. B. Wagner Jr. —p. 499.
Recent Advances in Surgery for Obliterative Arterial Disease. G. H. Pratt.—p. 517.
Clinical Applications of Adrenergic Blockade in Vascular Diseases with Special Reference to Dibenamine and 688A. H. Haimovici.—p. 531.
The Heart in Generalised Scleroderma: Progressive Systemic Sclerosis. R. H. Goetz.—p. 555.
Vein Inlay Graft in Treatment of Aneurysms and Thrombosis of Abdominal Aorta: Preliminary Communication with Report of 3 Cases. N. E. Freeman and F. H. Leeds.—p. 579.
Tryptar in Treatment of Diabetic Gangrene. S. S. Samuels.—p. 589.

**Chronic Edema of Lower Limbs.**—The prolonged accumulation of interstitial plasma in the tissues is known as chronic edema. Chronic edema of the extremities has two fundamental causes: disturbance of the venous circulation or venous edema (phlebedema), or disturbance of the lymphatic circulation (lymphedema). Venous edema is distal, depressible, and easily reducible by recumbency. It often causes dermatitis, pigmentation, and ulcers. It occurs as a result of deep valvular insufficiency, essential or postphlebitic, or as a result of venous obliteration, but rarely from the presence of a congenital or acquired arteriovenous fistula. The treatment of valvular insufficiency by deep ligation usually increases the edema. Lymphedema differs from venous edema by being less common, harder, scarcely depressible, less reducible by recumbency, and total or rhizomelic in localization. It may be divided into congenital, essential, and secondary. In essential lymphedema the treatments indicated are lymphangioplastic surgery and cutaneous plastic surgery. Venous edema and lymphedema favor streptococcic infections. These provoke fibrous hyperplasia of the skin, the subcutaneous cellular tissue, and aponeurosis, and finally the edema becomes irreversible and totally irreducible by recumbency, in a form partly corresponding to the so-called elephantiasis and called fibroedema by the authors. Finally, the author mentions erythrocyanoid lipedema, an orthostatic edema with adiposity of the legs forming a supramalleolar ischemia with coldness, cyanosis, and ultimately ulcers, which can be relieved by lumbar sympathectomy.

**Intrasaccular Wiring of Aortic Aneurysms.**—This report is based on 27 patients with the arteriosclerotic type of aneurysm. Linton briefly cites various therapeutic methods that have been tried, pointing out that ligation of the aorta has given disappointing results. Resection of the aneurysm with the insertion of a blood vessel graft or a plastic prosthesis may prove more efficacious, provided the patient is seen early. Another method of treatment consists of increasing the strength of the aneurysmal sac by laying on its surface sheets of cellophane or a dermal skin graft. It is, however, impossible to encircle the aneurysmal sac posteriorly, the area where rupture most frequently occurs. The "pack" method of intrasaccular wiring that was used in 22 of Linton's cases is based on the fact that the blood flow is most rapid in the main axis and slowest in the periphery of the aneurysm. It is believed that, if sufficient wire can be inserted into the sac, a thrombus will form in the periphery, thereby strengthening the wall and at the same time reducing the lumen to approximately the size of the normal aorta. The rate of blood flow in the axis of the aneurysm is sufficiently fast to prevent deposition of a clot on the numerous strands of wire that cross it, so there is little danger of complete thrombosis. Thrombosis did occur in one patient and resulted in death. The author uses the wiring trocar of Blakemore, and a stainless steel alloy wire, 0.010 in. in diameter. The first few feet of wire are passed manually. The wiring cannot be completed through the initial puncture site. The trocar is reinserted in several places and directed toward the areas that still show expansile pulsation. The smallest amount of wire inserted was 100 ft. (31 m.) and the greatest 960 ft. (295 m.). The mean for all the cases was 307 ft. (95 m.). An abdominal aneurysm can be wired most effectively by a transabdominal exposure under a general anesthesia. Seventeen patients survived the wiring, but three of them died before six months had elapsed and these cases are regarded as failures. At least 15 of the 17 who survived the procedure were benefited at least temporarily.

## Annals of Internal Medicine, Lancaster, Pa.

35:1175-1444 (Dec.) 1951

*Terramycin Therapy of Pneumonia: Clinical and Bacteriologic Studies in 91 Cases. G. G. Jackson, T. H. Haight, E. H. Kass and others. —p. 1175.
Current Concepts of Beryllium Poisoning. H. S. Van Ordstrand.—p. 1203.
Management of Lung Abscess, with Special Reference to Place of Antibiotics in Therapy. E. H. Drake and F. M. Sones Jr.—p. 1218.
*Study of Use of Radioactive Gallium in Medicine. F. R. Lang.—p. 1237.
*Quantitative Evaluation of Contribution of Nitrogen Mustard to Therapeutic Management of Hodgkin's Disease. A. Gellhorn and V. P. Collins.—p. 1250.
Extrathyroidal Hypermetabolism: Classification and Discussion Including Three Illustrative Case Reports. M. Bruger and V. P. Hollander. —p. 1260.
Disturbances of Cardiac Rhythm and Conduction in Congenital Cardiac Disease: Report of 5 Cases. H. M. Rogers.—p. 1276.
Psyche and Soma: Spiritual and Physical Attributes of Heart. P. D. White.—p. 1291.
Mechanism of Gallop Sounds, Studied with Aid of Electrokymograph. P. T. Kuo, E. A. Hildreth and C. F. Kay.—p. 1306.
Further Observations on Use of Liberalized Diets in Treatment of Diabetes. H. J. John.—p. 1318.
Variability of Signs in Multiple Sclerosis. I. C. Sherman.—p. 1329.
Myocardial Involvement in Acute Nonspecific Pericarditis: Report of Three Cases. J. Godfrey.—p. 1336.

**Terramycin Therapy of Pneumonia.**—Of 91 patients with pneumonia treated with terramycin, 68 had pneumococcal pneumonia, 6 had clinical and roentgen-ray findings consistent with the diagnosis of pneumococcal lobar pneumococci but laboratory examination was negative for pneumococci, 4 had primary atypical pneumonia, and 13 had nonpneumococcal bacterial pneumonia. The most frequent dosage regimen employed was 0.5 gm. of terramycin orally every four hours, a single starting dose of 1 gm. being used in about two-thirds of the pneumococcal cases and in about one-half of the other cases. Some patients required an increase of the interval between doses from four to six hours because of failure to tolerate the drug. In the great majority of the patients the total oral dose was between 10 and 30 gm. given over a period of from 4 to 10 days. Treatment was given intravenously in only four patients. The bacteriological results and the immediate clinical effects indicated that terramycin was highly effective against pneumococcal pneumonia. In most of the other pneumonias in which a bacterial etiology was proved or suspected and in the four cases of primary atypical pneumonia, the immediate effects of terramycin therapy were also favorable. Replacement of the flora of the sputum by staphylococci, slow clearing of the lungs, and recurrence or persistence of leukocystosis indicated that the beneficial effects of terramycin were, in part, vitiated in many of the authors' patients by superinfections with pathogenic strains of Staphylococcus aureus. Gastrointestinal symptoms from terramycin were frequent and in many patients were quite severe, adding considerably to the morbidity of many who recovered. In many of the patients with terramycin-induced diarrhea, the fecal flora was replaced by pathogenic staphylococci. In five of seven patients who died the toxic effects of terramycin on the gastrointestinal tract may have contributed in large measure to the fatal outcome. In addition, staphylococci were important pathogenetically in the lungs of four patients.

**Use of Radioactive Gallium in Medicine.**—Gallium is a rare metal with a low melting point (30 C) and a boiling point of 1,700 C. Gallium has several isotopes. Because of the short half-life (14.3 hours) and its gamma irradiation of 2.53 mev and beta irradiation of 2.50 mev, $Ga^{72}$ was selected as the ideal isotope of this metal for human application. Toxicity studies in animals showed that the dosage levels required for radioactive gallium in man are well below the danger zone. The established tracer dose for diagnostic use is 350 to 400 $\mu$c. The authors studied six patients with carcinoma of the prostate, two with carcinoma of the breast, and one each with bronchogenic carcinoma, gastric carcinoma, osteogenic sarcoma and osteochondrosarcoma. All had bone metastases. In each instance after administration of radioactive gallium, Geiger-Müller counts taken over every metastatic lesion demonstrated by x-ray survey of the bones showed a 20-fold increase above those of normal bone in the adjacent areas. On several occasions, areas of bone were observed that emitted increased irradiation after the administration of radioactive gallium and in which no x-ray evidence of metastases could be found. Undoubtedly these were bone areas in which metastases were forming at a stage too early to be demonstrated by roentgenograms. Only two attempts have been made thus far to use $Ga^{72}$ therapeutically in patients with malignant bone lesions. It is still too early to evaluate the ultimate effect of radioctive gallium on such patients, but information thus far obtained in these two cases strongly indicates that this isotope at least has a palliative effect in prolonging life and in relieving bone pain and other distressing symptoms. The short-life of $Ga^{72}$ makes control of the radiation dosage much easier and reduces the possibility of prolonged harmful residual radiation effects. Because of its selective location in the bony structures of the body, these therapeutic advantages over other materials warrant further investigation.

**Nitrogen Mustard in Management of Hodgkin's Disease.**—The course of Hodgkin's disease in 67 patients who received irradiation and nitrogen mustard in alternate courses has been compared with that in 65 patients who received radiotherapy alone. For the majority of the patients 0.2 mg. of methyl bis (beta chloroethyl) amine per kilogram of body weight on two successive days was the most satisfactory nitrogen mustard regimen. The four-year survival rate from the onset of symptoms, from the time of definite diagnosis by biopsy, or from the time of evident generalized disease was not significantly different in the two groups of patients. It has been concluded, therefore, that the addition of nitrogen mustard to the therapeutic regimen of irradiation does not modify the duration of life expectancy of the disease. It was demonstrated, however, that the amount of time necessary for irradiation treatments was reduced by one-half in the patients receiving irradiation and nitrogen mustard as compared with patients receiving radiotherapy alone, suggesting that the amount of irradiation required is less, the asymptomatic period greater, and economic burden lighter for the patients on the former therapeutic regimen than on the latter. The incidence of serious toxicity in the 144 courses of nitrogen mustard given to the 67 patients was 7%. One death occurred in a patient due to a miliary dissemination of pulmonary tuberculosis following the administration of nitrogen mustard. Immediate subjective and objective improvement followed 78% of the courses of nitrogen mustard. It is concluded that nitrogen mustard is a useful adjuvant to radiotherapy in the management of Hodgkin's disease, although it does not prolong life.

## Antibiotics & Chemotherapy, Washington, D. C.

### 1:545-600 (Dec.) 1951. **Partial Index**

Study of Effects of Procaine Penicillin G in Gelled Oil Following Intravenous Administration. S. W. Handford and N. V. Ricchiuti.—p. 545.
Study on Efficacy of Viomycin, Chloramphenicol and Polymyxin B on Pasteurella Multocida. G. A. Gorzynski and E. Neter.—p. 554.
Chemotherapeutic Trails Against Experimental Rat Arthritis. K. A. Ludwig and F. J. Murray.—p. 557.
In Vitro Comparative Study of Inhibitory Activity of Certain Antibiotics in Low and High Concentrations. C. W. Johnson and T. W. Johnson. —p. 560.
Actinomycin from Species of Genus Micromonospora. W. P. Fisher, J. Charney and W. A. Bolhofer.—p. 571.
*Treatment of Enterobiasis with Terramycin Base. E. H. Loughlin, I. Rappaport, W. G. Mullin and others.—p. 588.
Nigericin, New Crystalline Antibiotic from Unidentified Streptomyces. R. L. Harned, P. H. Hildy, C. J. Corum and K. L. Jones.—p. 594.

**Terramycin Base for Enterobiasis.**—Observations by Wells on the effiicacy of terramycin hydrochloride on pinworms in mice and in human subjects prompted Loughlin and associates to try the intermediate amphoteric form of terramycin, known as terramycin base, in the treatment of enterobiasis. Since they were studying terramycin base as a therapeutic agent in yaws, and since a number of patients with yaws also were infected with pinworms, it was simple to evaluate the efficacy of terramycin base in the latter infection in 30 patients. The diagnosis of enterobiasis was established by examining Scotch tape impressions of the anal and perianal skin folds for the presence of the eggs of Enterobius vermicularis. In view of the fact that the cycle of maturation of Enterobius from egg to egg requires from 15 to 28 days, and since no adequate measures to prevent these patients from becoming reinfected could be provided, the authors believed that a period of 35 days of observation after completion of treatment would be sufficient for determining the possibility of relapse. Terramycin base was administered in single, daily doses graded according to age of the patients as follows: to patients less than 5 years of age, 1 gm.; to patients between 5 and 10 years, 1.5 gm.; to patients over 10 years, including adults, 2 gm. Although the authors usually gave these doses for five days, they now believe that treatment should be continued for seven days. They feel that terramycin base has provided better results in the treatment of patients infected with pinworms than has any other anthelminthic. Advantages are lack of toxicity and the fact that supplementary measures such as cathartics, colon irrigations, and restricted diets are unnecessary.

## Blood, New York

### 7:1-96 (Jan.) 1952

Studies on Radiosensitivity of Bone Marrow: Relative Sensitivity of Erythroid and Myeloid Elements. W. N. Valentine and M. L. Pearce. —p. 1.
Id.: II. Effect of Large, Repeated Whole Body Irradiation Exposure on Hematopoiesis. W. N. Valentine, M. L. Pearce and J. S. Lawrence. —p. 14.
Hemorrhagic Diathesis Due to Circulating Anticoagulant: Report of Case with Laboratory Observations. E. R. Pons Jr. and M. V. de Torregrosa.—p. 20.
Infectious Mononucleosis: Prognostic Significance of Various Changes of Blood Leukocytes. J. E. Stevens, E. D. Bayrd and F. J. Heck.—p. 31.
Multiple Spontaneous Remissions in a Child with Acute Leukemia: Occurrence of Agranulocytosis and Aplastic Anemia in Acute Leukemia and Their Relationship to Remissions. F. A. Bassen and J. L. Kohn.—p. 37.
Studies on Abnormal Hemoglobins: III. Interrelationship of Type S (Sickle Cell) Hemoglobin and Type F (Alkali Resistant) Hemoglobin in Sickle Cell Anemia. K. Singer and A. I. Chernoff.—p. 47.
*Studies on Platelets: II. Effect of Transfusion of Platelet-Rich Polycythemic Blood on Platelets and Hemostatic Function in "Idiopathic" and "Secondary" Thrombocytopenic Purpura. M. Stefanini, J. B. Chatterjea, W. Dameshek and others.—p. 53.
Interrelationships of Factors That Influence Megaloblastic Anemias. R. H. Girdwood.—p. 77.

### 7:97-190 (Supplement to Jan.) 1952

Proceedings of the Second Conference on Folic Acid Antagonists in Treatment of Leukemia. S. Warren and others.—p. 97.

**Transfusion of Platelet-Rich Blood in Thrombocytopenic Purpura.**—Platelet-rich polycythemic blood, by the multiple syringe technique and siliconized apparatus, was transfused by Stefanini and associates in 14 cases of idiopathic ("megakaryocytic") and 8 of secondary ("amegakaryocytic") thrombocytopenia in order to study the effects on platelet number and function and on hemorrhagic manifestations. Platelets disappeared rapidly from the circulation (in from ½ to 12 hours) and in the 12 patients with *acute idiopathic thrombocytopenia* and in 1 patient with chronic thrombocytopenia with a low platelet count. They disappeared more slowly (24 hours) in the other case of chronic idiopathic thrombocytopenia in which there was a higher platelet count. Essentially similar platelet disappearance curves were obtained in two patients before and after unsuccessful splenectomy. In the patients with secondary thrombocytopenia, the survival of platelets in the circulation was much longer (average 48 to 96 hours). Behavior of clot retraction and prothrombin activity of serum paralleled closely that of the platelet count. The bleeding time and capillary fragility usually remained improved for 24 to 48 hours after the platelet count had fallen to the initial level, and the hemorrhagic manifestations also were improved in every case for many hours. Similar but less marked beneficial effects on the hemorrhagic manifestations were obtained with transfusions of blood from donors with normal platelet counts, provided fresh blood was used and precautions taken to prevent excessive loss of platelets. Remissions were observed in two patients with idiopathic thrombocytopenia following direct transfusion of polycythemic blood. In both cases the injected platelets disappeared promptly from the circulation but within 24 hours the platelet count began to rise and a long-sustained remission followed. This suggests that polycythemic blood may contain a stimulatory principle that can induce or accelerate a spontaneous remission. The authors conclude that the prompt disappearance of injected platelets from the circulation of patients with idiopathic thrombocytopenia suggests the presence of a humoral destructive mechanism that is not present in the secondary or amegakaryocytic cases. This destructive factor does not appear to originate in the spleen. These observations do not exclude the existence of an inhibitory effect upon platelet production from the megakaryocytes of the bone marrow. Polycythemic blood may contain a platelet stimulatory factor.

### California Medicine, San Francisco

76:1-54 (Jan.) 1952

Modern Use of Urinary Antiseptics. F. Hinman Jr.—p. 1.
Medical Aspects of Civil Defense in California. J. J. Stein.—p. 8.
Fractures About Elbow in Children. F. J. Cox, M. T. Hurley and R. B. Compton.—p. 13.
*Needle Biopsy of Liver: General Considerations. W. E. Molle and L. Kaplan.—p. 16.
Prolonged Labor. P. H. Arnot.—p. 20.
Psychosomatic Problems in Urology. A. Auerback and D. R. Smith.—p. 23.
*Malignant Tumors of Childhood.* R. E. Knutti.—p. 27.
Evaluation of New Method of Dust Control. M. C. Harris and N. Shure.—p. 30.
Problem of the Mentally Defective Child. P. Cohen.—p. 34.
*Infraclavicular Chest Wall Tumors in Hodgkin's Disease.* R. Goldman.—p. 38.

**Needle Biopsy of Liver.**—This report reviews 401 needle biopsies of the liver in 312 patients. Needle biopsy provides information about the liver that cannot be obtained readily with any other method. The chief reasons for its use are to determine the cause of liver enlargement, to establish the cause of jaundice, to distinguish between malignant disease and cirrhosis of the liver, to determine when hepatitis has subsided, and to evaluate the results of treatment. At times systemic disease that has not been recognized by other means may be diagnosed by this technique. When the biopsy diagnosis could be compared with observations at operation or autopsy, it was found that the correct diagnosis was made by biopsy in 85% of cases. Repeated biopsies provided a greater degree of accuracy. In several cases information obtained by biopsy proved that surgical treatment was unnecessary; in others the advisability of such treatment could be corroborated. The following are contraindications to needle biopsy of the liver: an uncooperative patient, impairment of the blood clotting mechanism, recent infection in the region of the biopsy, ascites (which should be removed prior to biopsy); abdominal distention, chronic passive congestion of the liver, a small liver, and complete obstructive jaundice. Needle biopsy of the liver is not without risk; the authors observed one case of fatal hemorrhage and one case of bile peritonitis; 25% of the patients had pain that radiated to the shoulder, 30% had epigastric discomfort, and 2% had pneumothorax. Other reactions and complications that might be expected but *were not* observed in the cases reviewed here include apprehension, friction rub, pleural hemorrhage, perforation of hollow viscus, perforation of gallbladder, atelectasis, and reaction to local anesthesia.

### Cancer Research, Chicago

12:1-76 (Jan.) 1952. **Partial Index**

Action of Tumors on Normal Tissue Synchronously Transplanted into Anterior Chamber of Mouse Eye. H. Browning.—p. 13.
Experimentally Produced Granulosa-Cell Tumors in Rats. B. M. Peckham and R. R. Greene.—p. 25.
*Identification* of Aromatic Polycyclic Hydrocarbons in Carbon Blacks. H. L. Falk and P. E. Steiner.—p. 30.
Metabolism of Neoplastic Tissue: II. Survey of Enzymes of Citric Acid Cycle in *Transplanted* Tumors. C. E. Wenner, M. A. Spirtes and S. Weinhouse.—p. 44.
Synergistic Action of Mixtures of Certain Hepatic Carcinogens. J. C. MacDonald, E. C. Miller, J. A. Miller and H. P. Rusch.—p. 50.
Effect of Pituitary Growth Hormone (Somatotrophin) on Body Weight and Tumor Growth in C3H Mice Bearing Transplantable Mammary Adenocarcinoma. M. C. Smith, P. A. Slattery, M. B. Shimkin and others.—p. 59.
Effect of Neoplastic Tissue on Turnover of Liver Nucleic Acids. A. H. Payne, L. S. Kelly and M. R. White.—p. 65.
Marcomolecular Particles Obtained from Human Neoplastic and Non-Neoplastic Lymph Nodes: II. Electron Microscope Study. M. S. Hoster, Q. Van Winkle, J. G. Rabatin and H. A. Hoster.—p. 69.

### Eye, Ear, Nose & Throat Monthly, Chicago

31:1-56 (Jan.) 1952

*Antimicrobial Therapy of Laryngeal Tuberculosis. L. J. Wallner.—p. 25.
Postoperative Cataract Lens. O. R. Wolfe, R. M. Wolfe and H. L. Wolfe.—p. 30.
*Otitis Externa, and Its Treatment with New Antibiotic Preparation. J. W. Graves.—p. 32.
Sequelae of Septal Surgery. C. B. Sputh Jr. and C. B. Sputh Sr.—p. 34.
Local Injection of Procaine Penicillin Solution in Secondary Mastoiditis. S. L. Ruskin.—p. 36.

**Antimicrobial Therapy in Laryngeal Tuberculosis.**—The larynx becomes involved secondary to pulmonary disease. The appearance of laryngeal lesions usually indicates a breakdown in the patients' general resistance to tuberculosis. Therefore, the treatment of the chest disease is always of primary importance. In laryngeal tuberculosis the relief of pain and hoarseness improves the morale. Improvement occurred in from 80 to 90% of patients given streptomycin for tuberculosis of the larynx. Occassionally there is complete resolution of all gross pathological changes so that the larynx appears entirely normal; more commonly, the ulceration healed and edema and infiltration subsided, but some thickening and hyperemia remained. *p*-Aminosalicylic acid can be given with good effect to patients who are resistant to streptomycin. At present, the consensus seems to be that the two drugs should be administered together, so that resistance to streptomycin is delayed, allowing prolonged therapy. Thiosemicarbazone has been used in only a small number of patients; its results have been disappointing when compared to those of streptomycin or *p*-aminosalicylic acid.

**Antibiotics in Otitis Externa.**—Infection of the external auditory canal has been referred to in the past as otomycosis (otitis externa mycotica), but the correctness of this terminology is questionable in the light of numerous studies of the flora in such infections. Graves cites reports from the literature that indicate that Pseudomonas aeruginosa is the organism most frequently found in external otitis and that fungi play a minor role. Staphlococcus albus is the organism most frequently found in normal ears. Acute or chronic otitis externa is accompanied by dermatitis, crusts, scales, and fissures at the meatus, and in many cases involves the tympanic membrane, thereby reducing hearing acuity. Occasionally, there is an eczematoid condition. The auditory canal has a moist coating of debris. The itching is severe and annoying; occasional bleeding from the ulcerated areas of skin generally causes the patient to consult a physician. A watery discharge resulting from the infection is also common. Graves found a preparation containing 8,000 units of polymyxin and 400 units of bacitracin per gram highly effective in 100 consecutive cases of infections of the external ear.

## Florida Medical Association Journal, Jacksonville

38:455-518 (Jan.) 1952

Role of Cancer Cytology in Medical Practice. J. E. Ayre.—p. 471.
Esophageal Hiatal Hernia Associated with Myocardial Infarction. W. Stamps.—p. 472.
Absorbable Postplaced Sutures in Cataract Surgery. J. W. Taylor Jr. —p. 479.
Stress and General Adaptation Syndrome of Theories and Concepts of Hans Selye. J. G. Seltzer.—p. 481.
Aerobiologic Survey of Miami Beach District, Report of Pollen Counts for 1948 and 1949 Including Mold Spore Counts for 1949. L. Palay. —p. 485.
Changes in Compensation Law. H. G. Cole.—p. 488.

## Georgia Medical Association Journal, Atlanta

41:1-36 (Jan.) 1952

Surgery in the Older Patient. H. H. Bradshaw.—p. 4.
Vocational Rehabilitation of Cardiac Patients. J. C. Massee.—p. 7.
Surgery in Treatment of Cancer of Maxillary Antrum. S. A. Wilkins Jr. —p. 9.
Sporotrichosis in Georgia. W. L. Dobes.—p. 14.
Eosinophilic Granuloma of Rib. S. B. Carter.—p. 17.

## Journal of Bacteriology, Baltimore

63:1-150 (Jan.) 1952. **Partial Index**

Growth Inhibition of Tubercle Bacilli by Analogues of Biotin. H. Pope. —p. 39.
Further Observations on Persistence of Individual Strains of Escherichia Coli in Intestinal Tract of Man. H. J. Sears and I. Brownlee.—p. 47.
Resistance to Ultraviolet Light as Index to Reproduction of Bacteriophage. S. Benzer.—p. 59.
Growth of Coxiella Burnetii in Embryonated Eggs. R. A. Ormsbee. —p. 73.
Properties of Cell-Free Hydrogenases of Escherichia Coli and Rhodospirillum Rubrum. H. Gest.—p. 111.
Toxicity of Elemental Sulfur for Brucellae. V. T. Schuhardt, L. J. Rode, G. Ogelsby and C. E. Lankford.—p. 123.

## Journal of Nervous and Mental Disease, New York

114:471-564 (Dec.) 1951

Glutamic Acid and Mental Deficiency. K. Albert, P. Hoch and H. Waelsch.—p. 471.
Preoperative and Postoperative Personality Changes Accompanying Frontal Lobe Meningioma. R. L. Kahn and B. Schlesinger.—p. 492.
*Neurosurgical Observations in the Multiple Sclerosis Syndrome. S. J. Rosner.—p. 511.
Deficiency State Cerebellar Syndrome. A. R. Furmanski.—p. 519.
The One and the Many. A. N. Foxe.—p. 528.
Autonomic Function in Insulin Coma Therapy. J. T. Shurley and H. M. Morris, Jr.—p. 532.

**Neurosurgical Observations in the Multiple Sclerosis Syndrome.**—Rosner reports on a series of patients with symptoms of multiple sclerosis who at exploratory operation had lesions differing from those found at autopsy in multiple sclerosis. The first patient had the symptoms of multiple sclerosis with amblyopia in the left eye, tremor of the intention type, ataxic gait, and slight scanning speech but no nystagmus. The significant factor suggesting some disease other than multiple sclerosis was that weakness and paresthesia were severer on the left side. Myelography disclosed a defect in the column of dye at the upper border of C5 on the right. At laminectomy, an adhesive arachnoiditis was demonstrated at C4-C5 on the right. The spinal cord in this area appeared anemic. There were no signs of plaque formation or thrombosis. The patient improved and is now gainfully employed. There has been no recurrence of the earlier symptoms during the five years that have elapsed since operation. The author presents the histories of eight other patients with symptoms suggesting multiple sclerosis in whom laminectomy was done on the basis of myelographic findings and revealed either adhesive arachnoiditis or tumors or a cyst exerting pressure on the cord. He feels that the history of symptoms being first confined to one side of the body should make one suspicious, because the multiple sclerosis syndrome may be simulated by any compressing or constricting cervical or thoracic cord lesion and these lesions are at least as numerous as the degenerative condition called multiple sclerosis. It is also his opinion that adhesive arachnoiditis is a far commoner cause of cord compression than is suspected. These adhesions may be local, that is, constricting one or two segments of the spinal cord.

## Journal of Pediatrics, St. Louis

40:1-142 (Jan.) 1952

*Ferrous Sulfate Poisoning: Report of Three Cases. T. L. Duffy and A. M. Diehl.—p. 1.
Ferrous Sulfate Poisoning: Report of Fatal Case. S. C. Swift, V. Cefalu and E. B. Rubell.—p. 6.
Lipoproteins of Serum in Infancy and Childhood: I. Lipoproteins in Normal Children. C. H. Kempe, H. K. Silver, F. S. Smyth and others. —p. 11.
Id.: II. Lipoprotein Levels in Juvenile Diabetes Mellitus. J. H. Carr, C. H. Kempe, H. K. Silver and others.—p. 19.
Aplastic Anemia in Siblings with Multiple Congenital Anomalies (Fanconi Type). W. Levy.—p. 24.
Pulmonary Hypertension in Children Due to Congenital Heart Disease. F. H. Adams.—p. 42.
*Right Heart Catheterization in Patent Ductus Arteriosus and Aortic-Pulmonary Septal Defect. F. H. Adams, A. Diehl, J. Jorgens and L. G. Veasy.—p. 49.
Congenital Cirrhosis of Liver Associated with Infectious Hepatitis of Pregnancy. L. B. Bellin and I. W. Bailit.—p. 60.
Early Clamping of Umbilical Cord During Cesarean Section. S. S. Stevenson and L. H. Erhard.—p. 64.
Acute Poliomyelitis: Differential Diagnosis of 409 Revised Diagnoses. K. E. Dawson, A. C. LaBoccetta, A. S. Tornay and A. Silverstein. —p. 71.
Aureomycin in Treatment of Beta Hemolytic Streptococcal Infections. B. B. Breese.—p. 85.
Stability of Ascorbic Acid in Milk at Different Stages of Processing. A. D. Holmes.—p. 91.
Laurence-Moon-Biedl Syndrome. I. Kessel.—p. 96.
Poliosis: Report of Case in 10-Year-Old Boy. R. L. Gilman and H .H. Perlman.—p. 101.
Potassium Bromide Poisoning. R. C. Knappenberger.—p. 105

**Ferrous Sulfate Poisoning.**—Ferrous sulfate intoxication was observed in three infants, aged 15 months, 18 months and 26 months, respectively, who had ingested between 15 and 40 enteric, chocolate coated 5 gr. (0.3 gm.) ferrous sulfate tablets two to six hours previously. The cardinal symptoms and signs of acute ferrous sulfate poisoning were well exemplified in these three patients as follows: vomiting with retching, clear watery stools later becoming tarry, profound shocklike picture and collapse, with rapid, weak or imperceptible pulse and low blood pressure, hypotonia, hyporeflexia, dilated pupils, and the semicomatose or comatose state. Two of the patients, who had ingested between 15 and 20 tablets, recovered, while the one who according to estimation had ingested 30 to 40 tablets died. The authors emphasize that ferrous sulfate intoxication is a reality; immediate treatment of the peripheral vascular collapse with plasma and/or whole blood is imperative.

**Right Heart Catheterization in Patent Ductus Arteriosus.**—Of 24 patients between the ages of 1½ and 18 on whom right heart catheterization studies were performed, 8 had typical patent ductus arteriosus, 11 had atypical patent ductus arteriosus, and 5 had an aortic pulmonary defect. Results showed that right heart catheterization is of questionable value in patients with typical findings of patent ductus arteriosus on physical, roentgen, and electrocardiographic examination. On the contrary, this technique proved to be of definite value in the atypical cases. In several patients thought to have some other defect because they had only a systolic murmur audible over the left precordium or had atypical diastolic murmurs, abnormal function as shown on electrocardiograms, with right axis deviation, and roentgen findings not consistent with typical patent ductus arteriosus, cardia catheterization clearly demonstrated a patent ductus arteriosus. These patients thus received the benefit of surgical ligation. In several instances the diagnosis was proved before surgery by passing the catheter through the ductus arteriosus and down into the aorta. Although some patients had large shunts with normal pulmonary artery pressures, most of the patients with elevated pressures had large shunts. Increasing cardiac disability seemed to be related more to the increase in pulmonary artery pressure than to the size of the shunt. Data on five patients with aortic-pulmonary septal defects showed that in some instances it is possible to pass the catheter through the defect into the aorta, thus proving the diagnosis. This can be distinguished from the situation where the catheter has passed through the ductus arteriosus into the aorta by the anterior position of the catheter in the lateral view. One paient died during the surgical attempt to close the septal defect, and at postmortem examination the diagnosis was confirmed. This is the first instance of such a diagnosis being made before death and confir [illegible] cropsy report [illegible] far in the literature.

## Journal of Thoracic Surgery, St. Louis

23:1-110 (Jan.) 1952

- Constrictive Pericarditis and Constrictive Pleuritis Treated by Pericardiectomy and Pulmonary Decortication: Report of Case. R. H. Overholt, C. S. Burwell, J. W. Woodbury and J. H. Walker.—p. 1.
- *Direct Intracardiac Relief of Pulmonary Stenosis in Tetralogy of Fallot. R. P. Glover, C. P. Bailey, T. J. E. O'Neill and others.—p. 14.
- *Treatment of Coronary Artery Insufficiency by Implantation of Internal Mammary Artery into Left Ventricular Myocardium. A. Vineberg.—p. 42.
- Congenital Cystic Disease of Lung Associated with Anomalous Arteries. F. G. Kergin.—p. 55.
- Physiology and Cytology of Pulmonary Edema and Pleural Effusion Produced in Rats by Alpha-Naphthyl Thiourea (ANTU). C. P. Richter.—p. 66.
- Late Results in Treatment of Pulmonary Tuberculosis by Thoracoplasty: Review of Two Series. G. C. Adie, W. G. Childress, H. J. Brezing and D. Taylor.—p. 92.
- Surgical Significance of Calcified Parabronchial and Paratracheal Lymph Glands. E. R. Maurer.—p. 97.

**Intracardiac Relief of Pulmonary Stenosis.**—The direct intracardiac relief of pulmonary stenosis has been attempted in 30 consecutive patients with the tetralogy of Fallot between the ages of 2 months and 36 years. In 15 of these patients there was stenosis of the pulmonary valve, in 12 an obstructing malformation of the pulmonary conus area (infundibulum), and in the remaining three a localized constriction in the main pulmonary artery distal to a normal pulmonary valve but proximal to the bifurcation of this vessel into its right and left major branches. The technique for the relief of valvular stenosis consisted of dividing the stenosed valvular cone with a Brock type valvulotome into a bicuspid valve and then passing the left index finger, or largest urethral sound, through the divided valve to insure patency without further rupture of the valve or vessel. For the relief of a high infundibular obstruction the proper sized flat-handled valvulotome guided by the intracardiac finger was passed up through the obstruction out into the pulmonary artery; after dividing the stenosis the instrument was removed and the finger was passed up into the pulmonary artery as a dilator. In case of a lower infundibular stenosis a pair of modified bone rongeurs was plunged into the heart, jaws open to engage the septum. A good-sized bit of tissue was thus removed, usually widely interrupting the continuity of the obstructing septal wall. In the three cases of localized constriction in the main pulmonary artery dilatation with graduated urethral sounds seemed to enlarge the arterial lumen satisfactorily. There were seven deaths (a mortality rate of 23.3%), three in the group of patients with valvular stenosis, and four in the group with infundibular stenosis. This mortality rate, although high, is consistent with the early results obtained with anastomotic procedures. The most disconcerting intraoperative complication was cardiac arrest; this occurred in 12 patients, but 8 of these recovered by the use of proper measures. In the immediate postoperative period the most challenging complication were signs of cardiac failure. In spite of the disappointing results in some patients and the complications in others it must be concluded that the direct intracardiac approach to the problem of pulmonary stenosis, whether it be pure or a part of tetralogy of Fallot, appears to be sound and logical from both the anatomic and physiological standpoints. The direct approach, if technically feasible, would appear to offer a more satisfactory long-term solution than the currently accepted anastomotic procedures for the relief of pulmonary stenosis in the tetralogy of Fallot, which are attended by certain dangers because an additional vascular defect has been produced.

**Coronary Artery Insufficiency.**—Animal experiments showed that when the internal mammary artery is placed in the ventricular myocardium, it forms new arterial branches that anastomose with the left coronary circulation. When this occurs, the heart is protected against death by infarction following the occlusion of the anterior descending branch of the left coronary artery. An internal mammary coronary artery anastomosis had functional value. It relieved artificially produced coronary artery insufficiency. The implant procedure differs from other grafting operations in that the internal mammary artery is not placed on the surface of the heart but is pulled into position by blunt dissection between the heart muscle fibers. Little damage is done to the heart muscle fibers and almost no reaction occurs around the implanted artery. The implanted artery, when it forms an anastomosis, furnishes a third artery to the left ventricle beyond the points of coronary artery occlusion. Four men between the ages of 49 and 55 with coronary artery insufficiency were treated by implantation of the left internal mammary artery into the left ventricular myocardium. The operative procedure appeared to cause no disturbance of cardiac function. The first patient operated on died 62 hours after the operation. At necropsy the internal mammary artery, as in the animal, was found to be completely patent. Death was due to a recent thrombosis of the anterior descending branch of the left coronary artery with ventricular infarction. The author believes that coronary thrombosis developed because of the continuous low blood pressure that was present throughout the operation. In order to bring these patients through an intrathoracic operation without further damaging their coronary artery system, it is necessary to maintain their blood pressure throughout the entire operative procedure. The three other patients in whom blood pressure was maintained by means of a continuous drip of phenylephrine hydrochloride survived the operation. One was well and working after five months, and the others showed improvement. There was no evidence that the procedure caused any harm to the existing coronary circulation.

## Kansas Medical Society Journal, Topeka

53:1-44 (Jan.) 1952

- *Primary Carcinoma of Lung: Study of 120 Autopsied Cases. D. M. Gibson.—p. 1.
- Strangulated Partial Enterocele (Richter's Hernia) Within Femoral Canal: Report of Two Cases Treated by Resection and Primary Anastomosis of Bowel. C. D. Enna and E. Guy.—p. 4.
- Infarction of Right Ventricle: Report of Case. A. Pollak.—p. 8.
- Errors in Diagnosis: How Made and How Avoided. R. Gorrell.—p. 10.

**Carcinoma of Lung.**—In 12,812 necropsies performed over a 35 year period at the Kansas Medical Center, malignant growths were found in 1,840 cases, including 120 cases of primary carcinoma of the lung. Thus, primary carcinoma of the lung occurred in 0.9% of all autopsies and in 6.5% of all cases of malignant growths. It is exceeded in frequency by sarcomas, intracranial tumors, and carcinomas of the stomach, colon, and prostate. There has been both an apparent and a real increase in the incidence of carcinoma of the lung in recent years. The mean age was 54, with an age range of 29 and 89 years, and 85% of the lung carcinomas occurred in men. They were found in a hilar region in 92% of the patients. Distant metastases were noted in 86% of the cases, and the liver, adrenals, brain, bones, heart, and kidneys were most frequently involved. Cough was the commonest presenting symptom, followed by dyspnea, chest pain, and hemoptysis. Of 19 cases with brain metastasis, the presenting symptoms of 13 were due to the intracranial lesion. The tumors were classified as follows: squamous cell carcinoma, 48 cases; adenocarcinoma, 42 cases; and anaplastic carcinoma, 30 cases. Well-differentiated squamous cell growths show less tendency to metastasize than other types, while differentiated adenocarcinomas behave much as anaplastic tumors do.

## Medical Annals of District of Columbia, Washington

20:641-700 (Dec.) 1951

- Medicine—Its Present and Future Problems. L. H. Bauer.—p. 641.
- Emotional Stresses in the World Crisis. W. Overholser.—p. 645.
- Trauma and Primary Brain Tumor. J. A. Wagner.—p. 650.
- Surgery of Anus. W. S. McCune.—p. 653.
- *Employability of Epileptics. I. L. Berman.—p. 658.
- Heart Block in Pregnancy: Report of Two Cases. J. R. Epstein and H. E. Altman.—p. 660.

**Employability of Epileptics.**—The 7,000 employees of the United States Government Printing Office include persons with various types of handicaps, such as deaf persons, some with healed tuberculosis, amputees, and 11 or more with epilepsy. The United States Civil Service Commission does not reject epileptics for sedentary or desk positions, provided "the person is under medical supervision and the disease is well controlled." Some epileptics try to hide their illness, but when they learn that the medical staff is ready to help them, they are anxious to unburden themselves. Those who are not adequately controlled and have grand mal seizures are immediately taken off hazardous work and reassigned to nonhazardous jobs. Four case histories are cited to illustrate experiences with epileptic employees. The seizures of all 11 epileptics are well controlled with various medications. Gainful employment is unquestionably one of the best therapies.

## Metabolism, New York

1:1-100 (Jan.) 1952

Incorporation of Glycine Nitrogen into Uric Acid in Normal and Gouty Man. J. D. Benedict, M. Roche, T. F. Yü and others.—p. 3.
Origin of Urinary Creatine in Progressive Muscular Dystrophy. M. Roche, J. D. Benedict, T. F. Yü and others.—p. 13.
*Utilization and Protein-Sparing Action of Fructose in Man. A. A. Albanese, W. C. Felch, R. A. Higgons and others.—p. 20.
Thyroid Function in Normal and Pathological States as Revealed by Radioactive Iodine Studies: I. Thyroid $I^{131}$ Uptake and Turnover in Euthyroid, Hyperthyroid and Hypothyroid Subjects. A. S. Freedberg, D. L. Chamovitz and G. S. Kurland.—p. 26.
Id.: II. Factors Influencing Uptake and Turnover of $I^{131}$ by Thyroid Gland. A. S. Freedberg, D. L. Chamovitz and G. S. Kurland.—p. 36.
*Influence of Potassium on Tissue Protein Synthesis. P. R. Cannon, L. E. Frazier and R. H. Hughes.—p. 49.
Changes in Nutritional Requirements Accompanying Marked Changes in Hormone Levels. J. Meites.—p. 58.
Influence of Food Intake on Ketosis, Mineral Balance and Survival of Alloxan-Diabetic Rats. W. A. Brodsky, N. Nelson and G. M. Guest. —p. 68.
*Fat Emulsions for Oral Nutrition: IV. Metabolic Studies on Human Subjects. T. B. Van Itallie, W. B. Logan, R. L. Smythe and others. —p. 80.
Metabolism Cage for Rats, with Feeding Device that Minimizes Food Scattering. G. M. Guest, W. A. Brodsky and N. Nelson.—p. 89.

**Utilization and Protein-Sparing Action of Fructose.**—A comparison was made between the metabolism of intravenously administered 10% invert sugar solution and that of 10% dextrose solution in five fasting convalescing men. During the infusion of invert sugar the total blood sugar level rose more rapidly initially than during the infusion of dextrose, but did not reach as high a peak. This suggests that intravenously administered fructose is more readily metabolized than dextrose and presumably induces a more rapid glycogenesis. During and after invert sugar administration only 0.5% to 2.1% of the total sugar administered was lost in the urine, as contrasted with 10% to 26% following dextrose administration. Apparently invert sugar infusions result in negligible loss not only of fructose but also of dextrose. There was 50 to 80% less diuresis in patients receiving invert sugar. In postoperative patients metabolism of invert sugar was unimpaired but dextrose seemed to be utilized less efficiently, as indicated by higher blood sugar levels during infusion. Studies with orally administered sugars in four normally growing children demonstrated that diets in which approximately 70% of the total carbohydrate was fructose induced a marked increase in nitrogen retention in each case. This result was not achieved with diets high in dextrose or galactose. The protein-sparing action of the high fructose diet was diminished when there was an isocaloric reduction of daily protein nitrogen intake from a normal value of 300 mg. per kilogram of body weight to 200 mg. per kilogram. Diets containing 250 to 300 gm. of fructose per day had little or no effect on blood sugar levels and caused negligible fructosuria, indicating that fructose is as physiologic a sugar as dextrose. The authors conclude that invert sugar infusions offer the following practical advantages over dextrose infusions: (1) They provide a readier source of energy than glucose for periods of severe metabolic stress, and (2) their greater protein-sparing effect should reduce undesirable nitrogen losses usually induced by accidental or surgical trauma.

**Potassium in Tissue Protein Synthesis.**—In parenteral feeding the intracellular electrolytes were formerly largely disregarded, but it seems possible that the efficiency of parenteral feeding might be considerably improved by supplementation with potassium salts. In the past it was difficult to study potassium deficiency because the experimental diets contained protein, which varied in its potassium content. Now it is possible, however, to satisfy the nutritive needs for nitrogen by a mixture of amino acids that contain no potassium. Experiments designed to determine the influence of dietary potassium on the processes of tissue protein repletion indicated that this intracellular cation is essential in the reconstruction of tissue protein. Whereas in protein-depleted rats a repletion ration affording an adequate supply of calories, vitamins, amino acids, and salts caused effective recovery of lost weight, removal of potassium from the salt mixture in the ration led to poor food consumption, failure to gain weight adequately, development of cardiac lesions characteristic of potassium deficiency, and early death. However, addition of small amounts of potassium chloride to the deficient ration enabled the animals quickly to achieve effective protein repletion. Experiments also revealed the inability of two protein hydrolysates of excellent amino acid composition to accomplish effective protein repletion in the absence of potassium salts in the basal ration. This indicates the need for potassium supplementation when these hydrolysates are to be used in parenteral feeding.

**Fat Emulsions for Oral Nutrition.**—Recently a fat preparation was described that is reasonably palatable and contains more calories than conventional dietary supplements. The emulsion contains 40% fat and 10% dextrose. It provides 4 calories per gram (1,000 calories in an 8 oz. [250 cc.] glass) in contrast to the 1.4 calories per gram supplied by a rich egg nog. Its palatability appears to be due to the small size of its fat particles, most of which are below 1 µ in diameter. Therapeutic amounts of the preparation were well tolerated in 85% of 250 patients and volunteers. This report describes metabolic studies on four persons who tolerated 250 to 550 cc. of the preparation, providing 1,000 to 2,200 calories per day. Nitrogen and potassium deficits due to a calorically inadequate diet were corrected by the emulsion. Fat balance studies on three subjects showed that the ingested fat was well assimilated. In one subject fat emulsion given by mouth caused more efficient utilization of marginal amounts of intravenously administered nitrogen. Although the oral fat emulsion was well accepted by these four subjects, previous clinical experience indicates that a small incidence of intolerance must be anticipated. There is no evidence that emulsification per se enhances the intestinal absorption of fat; in fact, it has been shown that emulsified preparations of this kind are unstable in the rat stomach and intestine. Clinical use of the oral fat emulsion must take into account the vagaries of the gastrointestinal response to fat in any form.

## Minnesota Medicine, St. Paul

*34:1133-1234 (Dec.) 1951*

The Changing Mole. S. W. Becker.—p. 1153.
Congenital Obstruction of Alimentary Canal in Newborn. D. P. Anderson and R. R. Wright.—p. 1159.
*Use of Adrenocorticotrophic Hormone in Treatment of Myasthenia Gravis. S. K. Shapiro.—p. 1160.
Unresolved Pneumonia. H. H. Joffe and S. E. Silvertson.—p. 1165.
Botanical Consideration of Weed Oleoresin Problem. S. Mackoff and A. O. Dahl.—p. 1169.
Repair of Ventral Hernia with Knitted Wire Mesh. C. T. Eginton and J. A. Henderson.—p. 1174.
Ventricular Aneurysm: Case of More than 12 Years' Duration. H. H. Hanson and H. L. Smith.—p. 1177.
Endocrinogenic and Neurogenic Factors in Hypertension. J. J. Eustermann.—p. 1181.

**Corticotropin in Treatment of Myasthenia Gravis.**—With the introduction of corticotropin it was hoped that patients with myasthenia gravis might be helped. Less than 30 cases of myasthenia gravis have been reported to date in which corticotropin was used, and observations indicate that corticotropin is not a panacea for these patients. Its use is not without danger but nevertheless some patients have obtained definite improvement. In the first of the three patients reported here the administration of corticotropin during an acute phase of the disease appeared to cause a worsening. Subsequently a partial remission developed. Following a second course of corticotropin there was a definite improvement and the patient had an amazing remission which has persisted for one year. In the second patient, the myasthenia gravis became progressively more severe, until she had an acute exacerbation during which tracheotomy and respirator care were necessary. The patient became prostigmine-fast. Her condition remained exceedingly precarious for nearly a month, and at the end of this time she apparently began a spontaneous remission. The corticotropin was administered when the patient was in a partial remission and at the time of this report had produced no appreciable effect. The role of corticotropin in prolonging her remission will be difficult to determine. The third patient was growing progressively worse at the time corticotropin administration was commenced. The corticotropin did not alter the course of her disease, and the patient died on the 13th day of corticotropin therapy. Postmortem examination revealed bilateral bronchial pneumonia and a substernal thymoma.

## New England Journal of Medicine, Boston

### 245:997-1032 (Dec. 27) 1951

John Homans Lecture. D. C. Elkins.—p. 997.

Effects of ACTH on Induced Malaria in Man. E. H. Kass, Q. M. Geiman and M. Finland.—p. 1000.

Microsporosis of Scalp: Evaluation of New Therapeutic Agent. B. Appel, M. J. Tye, W. Halpern and D. Paci.—p. 1003.

Chills and Fever Following Oral Use of Procaine Amide (Pronestyl). S. Leibowitz.—p. 1006.

ACTH and Cortisone in Treatment of Ocular Disease. R. W. Smith Jr. and E. H. Steffensen.—p. 1007.

## New Orleans Medical and Surgical Journal

### 104:253-296 (Jan.) 1952

Tuberculosis Problem in Louisiana. S. Jacobs, A. A. Calix, M. Campagna and C. C. Kuehn.—p. 253.

Extrathoracic Initial Symptoms in Bronchogenic Carcinoma. C. Oderr. —p. 255.

Nonhormonal Carcinoma of Adrenal Cortex. P. L. Getzoff.—p. 258.

Management of Complications of Heart Failure. A. M. Goldman.—p. 261

Present Day Indications for Cesarean Section: Report of Cesarean Sections Performed on the Tulane Service at Charity Hospital, January 1, 1949—January 1, 1951. I. Dyer and F. Gilbert.—p. 266.

Kirschner Wire Intramedullary Fixation Versus Hanging Case in Fracture of Humerus. J. E. Wheeler.—p. 271.

Clinical Features of Acute Gastroenteritis, Presumably Viral in Etiology. S. G. Wolfe and C. H. Webb.—p. 273.

Premalignant Lesions of Colon. J. H. McCormick Jr.—p. 279.

Common Dermatological Problems in Refining of Petroleum. H. Hansen, E. R. Hawkins, M. E. Kopfler and J. LaNasa.—p. 280.

## Ohio State Medical Journal, Columbus

### 48:1-96 (Jan.) 1952

Compulsory Hospital Isolation of Recalcitrant Positive—Sputum Patient (with Analysis of Extremely Successful Enforcement Plan). W. L. Potts and O. M. Goodloe.—p. 25.

*Treatment of Primary Atypical Pneumonia—Need for Controls in Evaluation of Aureomycin Therapy. I. G. Tillotson and R. O. Oseasohn. —p. 32.

Woman's Hazards in Business, Politics and Industry. A. Ruppersberg Jr. —p. 34.

Hemipelvectomy: Experiences with Three Cases. F. J. Rack and J. H. Lazzari.—p. 38.

Treatment of Epilepsy—(Report on Results of Treatment of 51 Students Attending Ohio State University). N. Michael.—p. 42.

Perforated Peptic Ulcer of Stomach and Duodenum. C. R. Lulenski. —p. 44.

**Aureomycin in Primary Atypical Pneumonia.**—Three series of cases of primary atypical pneumonia treated with aureomycin that were reported with controls were summarized by Tillotson and Oseasohn as follows: (1) Schoenback and co-workers observed what appeared to be a significant reduction in duration of fever in aureomycin treated patients, but the control and treated series are of questionable comparability in that the patients of each group were observed in different years; (2) Harvey and coworkers presented a small series of alternate treated and untreated patients, in which no difference between the two was apparent; (3) Meiklejohn and Shragg observed some reduction in duration of febrile period in their aureomycin treated patients. The control series showed a much higher incidence of cold hemagglutinin titers than did the treated series. This suggests the possibility that the untreated cases had more severe disease than the treated cases for the following reasons: the titer of cold agglutinins appears to be directly related to the severity of the disease, and the data presented in the other reports give no indication that aureomycin treatment suppresses the formation of this antibody. Analysis of the data presened reveals few, if any, adequately controlled observations, so that the specific effectiveness of aureomycin cannot be accepted without reservation. Failure of aureomycin to alter the course of primary atypical pneumonia in a few patients appears highly significant in the absence of controlled studies. Final judgment regarding efficacy of aureomycin in primary atypical pneumonia must be withheld despite several enthusiastic clinical reports.

## Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

### 78:665-886 (Dec.) 1951. Partial Index

*Preparation of Clinically Active Adrenocorticotropic Hormone (ACTH) in Good Yield from Sheep Pituitary Glands. Choh Hao Li, G. W. Liddle, W. O. Reinhardt and L. L. Bennett.—p. 665.

Excretion of Amino Acids in Cystinuria. W. H. Stein.—p. 705.

*Coramine (Nikethamide) as Adjuvant to Atropine in Treatment of Poisoning by EPN (Ethyl p-Nitrophenyl Thionobenzenephosphonate). V. DiStefano, L. Hurwitz, W. F. Neuman and H. C. Hodge.—p. 712.

Plasma Antihemophilic Activity Following Total Body Irradiation. G. D. Penick, E. P. Cronkite, I. D. Godwin and K. M. Brinkhous.—p. 732.

Study of Moniliasis in Aureomycin Therapy. L. V. McVay Jr. and D. H. Sprunt.—p. 759.

Hemolytic Action of Gramicidin and Tyrodicin. K. P. Dimick.—p. 782.

Stabilizing Action of Glycerine on Hemagglutination of Egg-Adapted Mumps, Newcastle Disease and Influenza Viruses. V. J. Cabasso, F. S. Markham and H. R. Cox.—p. 791.

Beneficial Effects of Liver on Cortisone Acetate Toxicity in Rat. B. H. Ershoff.—p. 836.

Hypoproteinemia as Protection in Mercuric Chloride Poisoning. H. F. Martin and N. H. Reid.—p. 863.

***Corticotropin from Sheep Pituitary.***—Methods previously employed for the extraction of corticotropin from sheep and swine pituitaries produced comparatively low yields. This paper describes a simple procedure that produces from whole sheep pituitaries a much higher yield of purified corticotropin, substantially free from growth, gonadotropic, thyrotropic, antidiuretic, and pressor activities. Clinical and laboratory evidence indicates that corticotropin prepared by this method is therapeutically and metabolically effective in patients with rheumatoid arthritis.

**Nikethamide in Poisoning by Organic Phosphates.**—A number of organic phosphates such as ethyl *p*-nitrophenyl thiobenzenephosphonate (EPN) have great economic importance as insecticides. Since these compounds inhibit cholinesterase, they are extremely hazardous and the search for efficacious antidotes is important. At present, atropine because of its powerful parasympatholytic activity is the drug of choice in the treatment of poisoning by these agents. It is believed that death following organophosphate poisoning results from respiratory failure. The administration of a respiratory stimulant, then, would seem to be advantageous. Studies reported in this paper proved that the administration of nikethamide (coramine®) and atropine together was considerably more effective in the treatment of ethyl *p*-nitrophenyl thiobenzenephosphonate poisoned rats than was atropine alone. The authors admit, however, that observations on rats cannot be directly applied to the treatment of poisoning in human subjects.

## Science, Washington, D. C.

### 115:1-24 (Jan. 4) 1952. Partial Index

Life Span of Leucocytes in the Human. D. L. Kline and E. E. Cliffton. —p. 9.

*DDT Resistance in Korean Body Lice. H. S. Hurlbut, R. M. Altman and C. Nibley Jr.—p. 11.

New Method for Detecting Penicillinase Production by Staphylococci. A. A. A. El Ghoroury.—p. 20.

Decrease of Albumin Concentration of Human Blood Serum During Heat Inactivation. P. Koets.—p. 21.

**DDT Resistance in Korean Body Lice.**—Despite routine application of 10% DDT powder to Korean military personnel, the percentage of persons infested with body lice (Pediculus humanus corporis) increased steadily during the winter and spring of 1951. The method used was essentially that employed by Soper and associates in 1943, except that power dusters were used. The dust is applied without the removal of clothing. The DDT came from various sources, including a large stock of an American manufacture that had been in storage for five or six years. Tests with mosquito larvae, however, demonstrated that it had retained its full potency. After describing various experiments that were carried out with DDT powders and with cloth that had been impregnated with DDT, the authors say that since 1947 DDT resistance in houseflies has been reported from numerous localities where DDT has been in use. Laboratory experiments have demonstrated that resistant strains of flies can be developed by selective breeding, and this has been interpreted as indicating that such a process occurs in nature. It seems probable that an analogous condition exists in the body louse. Hitherto, great dependence has been placed on DDT for the control of typhus; but it now appears to be of uncertain value.

# FOREIGN

## Acta Chirurgica Scandinavica, Stockholm

### 102:241-320 (No. 4) 1951. Partial Index

Infrapapillary Carcinoma of Duodenum. A. Odelberg.—p. 241.
*Rectosigmoidectomy for Hirschsprung's Disease. T. Ehrenpreis.—p. 251.
*Frequency of Recurrence of Calculi in Gallbladder After Cholecystolithotomy. M. Pers and H. Baden.—p. 260.

**Rectosigmoidectomy for Hirschsprung's Disease.**—Rectosigmoidectomy by Swenson's technique with two minor modifications was performed on 18 boys and 2 girls with Hirschsprung's disease. The diagnosis of this disease, which is characterized by agenesis of the myenteric plexus within a narrow distal segment of the bowel, depends on the roentgenologic demonstration of such a segment. In the author's cases three types of narrowing of the distal segment were observed as follows: In some cases the entire segment was pronouncedly contracted. In other cases the segment per se appeared to be almost normal, but, when it was compared to the dilated bowel above, there was a pronounced difference in size. In a third group a proximal part of the distal segment was contracted, but the terminal part appeared to be of normal size. The length of the narrow distal segment varied considerably, and there was no correlation between the absolute length of the distal segment and the proportion of the bowel involved. There were no deaths in this series. Except for one partial failure of the surgical intervention due to incomplete resection, all patients obtained complete relief from their symptoms for follow-up periods of from six months to two and one-half years. There have been no strictures of the anastomosis. All patients had normal sphincter control and normal bladder function. The anastomosis broke down in two cases, apparently because of circumscribed necrosis of the proximal segment, which had been deprived of an adequate blood supply. In these cases colostomy was followed by rapid improvement. The importance of a careful check of arterial pulsations in the resection area has been stressed.

**Recurrence of Calculi in Gallbladder.**—Among 504 patients followed for an average of 19.7 years after cholecystolithotomy, unquestionable recurrence of calculi was demonstrated by reoperation, postmortem examination, or cholecystography in 109 (21.6%), but the actual percentage of recurrences may be assumed to be 30%. Of the 109 patients, 86 had recent symptoms of biliary tract disorder, 15 had no symptoms, while reliable clinical information was not available in the remaining 8 patients. Biliary colic occurred in 42 patients who had no recurrent calculi. In some of the patients recurrent calculi were manifested more than 20 years after the cholecystolithotomy. The highest percentages of recurrence were demonstrated in patients less than 40 years old, in those with the least significant changes in the gallbladder, and in those with uninfected gallbladder contents. There thus appeared to be a great risk of recurrent calculi in patients whose gallbladders seemed suitable for preservation. Women showed a greater tendency to recurrence than men, which conforms with the fact that biliary calculi develop more frequently in women than in men. The lowest incidence of recurrent calculi was observed among patients who had gallstones removed not only from the gallbladder but also from the common and cystic ducts.

## British Journal of Dermatology, London

### 63:431-488 (Dec.) 1951

Pigmentation of Skin J. H. Burn.—p. 431.
*Pineapple Dermatosis. I. Polunin.—p. 441.

**Pineapple Dermatosis.**—In Hawaii the pineapple industry has long been highly mechanized. Handling of pineapples is reduced to a minimum, and contact with the juice is prevented by rubber gloves. The "pineapple burn," as it is called, is rarely seen in Hawaii today. In Malaya the fruit is usually cut by hand for canning. In this work the hands are exposed to the juice in spite of the use of rubber gloves. At the beginning of the canning season dermatitis develops in the workers, and is worst on pressure areas. The hands are tender for the first few days, when raw areas are often seen on the finger tips. The condition later becomes painless, and this is ascribed to the development of an opaque white appearance of the skin. Biopsy specimens show an almost complete disappearance of the stratum granulosum, which becomes a poorly defined layer that contains few granules and consists of cells widely separated by an increase of intercellular fluid. The stratum corneum shows evidence of stratification and the Malpighian stratum is probably thickened. The horny ridges, and hence the fingerprints, become temporarily obliterated. Bromelin, the proteolytic enzyme from pineapple, causes the same lesions as pineapple juice when rubbed on to the skin, and is thought to be the cause of the dermatosis. Proteolytic enzymes cause separation of the superficial layers of skin and increase skin and capillary permeability. The action of proteolytic enzymes on the skin was not prevented by the use of high concentrations of an antihistamine drug.

## British Medical Journal, London

### 1:59-118 (Jan. 12) 1952

Physiology and Relief of Traumatic Arterial Spasm. J. B. Kinmonth.—p. 59.
Simple Standard Exercise Test and Its Use for Measuring Exertion Dyspnoea. P. Hugh-Jones.—p. 65.
Late Results of Perurethral Prostatic Resection. T. L. Chapman and J. W. Sutherland.—p. 72.
Incontinentia Pigmenti: Report of Case, with Summary of 29 Cases from Literature. A. W. Franklin.—p. 75.
Congenital Duodenal Obstruction and Mongolism. M. Bodian, L. L. R. White, C. O. Carter and J. H. Louw.—p. 77.
Acute Infectious Lymphocytosis: Report on Group of Cases in a Day Nursery. H. G. Dunn.—p. 78.
Tuberculous Meningitis: Treatment with Streptomycin and Para-Aminosalicylic Acid. S. R. Jamieson.—p. 83.
Chloramphenicol in Treatment of Cutaneous Anthrax. P. S. Clarke.—p. 86.
Bleeding Meckel's Diverticulum: Report of Two Cases. J. N. Walton and N. D. Lill.—p. 88.

## Doc. Neerland. et Indon. de Morbis Trop., Amsterdam

### 3:289-384 (No. 4) 1951. Partial Index

Control of Hyperendemic Malaria in Java, Caused by A. Sundaicus, by DDT House-Spraying. P. H. van Thiel and R. M. P. Winoto.—p. 295.
Tropical Eosinophilia and Filariasis. J. H. Reisel and J. Groen.—p. 320.
Epidemiological Aspect of Malaria in Equatorial Africa. N. H. Swellengrebel.—p. 325.
*Treatment of Hepatic Abscess with Chloroquine. J. J. C. P. A. Roovers and P. B. van Steenis.—p. 333.
Healthy Pigs as Salmonella Carriers in Java; Aerobic Bacterial Flora of Their Mesenteric Lymph Nodes. F. C. Kraneveld, M. Erber and M. Mansjoer.—p. 343.
Incidence of Cancer in Indonesia. W. Kouwenaar.—p. 357.

**Chloroquine Treatment of Hepatic Abscess in Amebiasis.**—Roovers and Steenis discuss the drugs that have been used in the treatment of amebiasis and particularly of hepatic abscess resulting from amebiasis. The results of drug therapy of amebiasis depend on the amebicidal effect of the drug, which in turn depends on the concentration of the drug at the sites where the ameba are present: in the intestinal wall, liver and other tissues as histolytical forms, and in the intestinal lumen as cystic forms. Chloroquine had a rapid action and gave good results of long duration in four patients. Two who had proved refractory to emetine have been free from relapses for 18 months to 2 years. A course of chiniofon or carbarsone should be given after termination of chloroquine (or emetine) treatment of the hepatic abscess in order to destroy the cysts in the intestinal lumen.

## East African Medical Journal, Nairobi

### 28:397-448 (Oct.) 1951. Partial Index

*Treatment of Tick-Borne Relapsing Fever in East Africa with Special Reference to Aureomycin. H. C. Trowell.—p. 403.
Surgical Emphysema of Intestine After Gastro-Enterostomy. C. J. S. Sergel.—p. 413.
Medical Missionary Work in West Nile District of Uganda. E. H. Williams and P. H. Williams.——p. 415.
Leprosy in Teso District, Uganda. H. W. Wheate.—p. 420.

**Aureomycin in Relapsing Fever.**—The consensus is that the arsenicals are useless if not dangerous in tick-borne relapsing fever as seen in East Africa, although they may be of some use in louse-borne relapsing fever. While penicillin may shorten the acute attack, it does not prevent relapses. Trowell feels that the more favorable effects of arsenic and penicillin reported by some investigators may be explained by the fact that in other parts of the world the spirochete strain may be different. Since aureomycin was quite effective in treatment of tick-borne relapsing fever in Africans at the Witwatersrand mines and in patients with this disease in Portuguese West Africa, Trowell decided to investigate the effect of this drug on tick-borne relapsing fever in a controlled study. Alternate patients were placed either in the control group, which were untreated except by 10 gr. (0.6 gm.) of aspirin three times a day, or in the group who were given aureomycin. Relapses occurred in 8 of 13 control cases, and two children who were seriously ill and had relapsed several times were transferred to the aureomycin group, with prompt relief of their symptoms. The mean duration of the febrile period of the first bout of fever in the control group was 50 hours, and spirochetes were detected in the blood smears for a mean period of 24 hours. Aureomycin was given to 14 patients, including the two children transferred from the control group. No relapses were observed in the subsequent afebrile period, which in 11 cases exceeded 10 days. The mean duration of the febrile period of the first bout of fever was 11 hours, and spirochetes usually disappeared within three hours of aureomycin administration. The average minimal effective dose was 2 gm. and may be smaller. Subsequent to this investigation cure was obtained in two more cases of relapsing fever following administration of only 0.5 gm. of aureomycin, and in both cases the blood smear became negative within two hours.

## J. Franç. Méd. et Chir. Thorac., Paris

### 5:509-604 (No. 6) 1951. **Partial Index**

Mechanism of Emphysema Surrounding the Pneumonoconiosis Lesions Caused by Coal Dust. A. Policard.—p. 509.
Constrictive Pericarditis; Etiology; Histories of Four Cases of Tuberculous Pericarditis, Two of Which were Constrictive. E. Stephan. —p. 512.
*Note on 400 Cutaneous Histoplasmin Tests Performed in Children. P. Fréour and Arnoux-Laujac.—p. 576.

**Cutaneous Histoplasmin Tests in Children.**—Cutaneous histoplasmin tests were performed on 417 children by injecting subcutaneously in the deltoid region 0.1 cc. of a 1% solution of histoplasmin. Readings were made 48 hours later. Four children who were anergic to Pirquet and Mantoux tests had reactions to histoplasmin 5, 6, 6, and 7 mm. in diameter. Reactions to simultaneous tests with coccidioidin were likewise positive. These children were receiving rest treatment because of general fatigue. Clinical examinations did not reveal any abnormality. Roentgenologic examinations of the lungs disclosed no abnormalities. Six children had a reaction to histoplasmin greater than 6 mm. in diameter, but they also showed a strongly hyperergic reaction to tuberculin. They probably had a primary tuberculous infection, and three had the lymph node and osteoarticular manifestations. Two other children had positive reactions to histoplasmin of unspecified diameter. One, a child aged 5, had scrofulous lesions with a vesicular Pirquet's reaction; the other, aged 9, had arthritis of the right knee and was anergic to tuberculin. Roentgen examination of the lung did not reveal any abnormality. All of the remaining children reacted negatively to histoplasmin. It was not concluded that the children with a positive reaction to histoplasmin had histoplasmosis, since this reaction is not always specific. A strongly positive reaction to histoplasmin frequently coincides with a strongly positive reaction to coccidioidin or tuberculin, as in the authors' cases. The authors' results suggest that additional tests, such as complement fixation, flocculation, and particularly detection and culture of parasites from the blood or bone marrow may be required for the diagnosis of histoplasmosis.

## Journal of Laryngology and Otology, London

### 65:809-876 (Dec.) 1951

Treatment of Maxillary Sinusitis by Local Injection of Procaine Penicillin-in-Oil. M. S. Strong and R. W. Tonkin.—p. 809.
Sympathectomy and Internal Ear. R. S. Lewis.—p. 825.
The Hearing of Undergraduates: Pilot Study Using Audiometry. R. W. Parnell.—p. 843.
Case of Boeck's Sarcoidosis of Cervical Lymph Glands. H. M. Parsons and W. McKenzie.—p. 848.

## Medical Journal of Australia, Sydney

### 2:833-868 (Dec. 22) 1951

Time, Science and the Individual. D. J. Thomas.—p. 833.
Survey of Incidence of Interdigital Tinea in Group of Students from the University of Queensland. B. T. Emmerson.—p. 837.
Investigations into Aetiology of Glomerulonephritis: Preliminary Report. D. Bialestock.—p. 842.
Research in Physical Education and Related Subjects, with Special Reference to University Departments of Physical Education. F. Duras. —p. 846.
Curare and Electro-Convulsive Therapy: Simplified Technique. R. R. Webb.—p. 851.
Determination of Sodium and Potassium in Blood Serum. O. E. Neufeld. —p. 851.

### 2:869-892 (Dec. 29) 1951

Criteria of Cancer Cure. W. E. Gye.—p. 869.
Importance of Relativity of Blood Pressure and Other Signs in Prevention of Eclampsia. T. D. Hughes.—p. 871.
*Iron Losses of Healthy Women During Consecutive Menstrual Cycles. J. Millis.—p. 874.

**Iron Losses During Menstruation.**—The fact that the hemoglobin level in women can be raised to that in men by administration of iron salts suggests the presence of some degree of anemia in women. The anemia may be due to a lower dietary intake of iron, to less efficient absorption and utilization, or to a greater loss of iron from the body than in men. Each of these possibilities is considered in this paper in the light of published work and of the information obtained from this study on 14 student nurses in a Melbourne hospital. Each subject was given a thorough examination at the beginning of the experiment. Blood samples were withdrawn for hemoglobin estimation each week. The menstrual flow was collected on cotton pads. Iron intake was calculated from records of food consumption. The percentage of hemoglobin in blood in each subject varied from week to week, but there was no consistent relationship between hemoglobin levels and the duration of the menstrual cycle. Furthermore, the iron losses in a subject varied from one menstrual period to another, which made it necessary to determine the losses on several occasions to obtain a reliable figure. The loss of iron varied from 3.5 to 66.8 mg. of iron per menstrual period, and the average for 57 menstrual periods was 21.8 mg. Four of the 14 persons studied require 1 mg. or more of iron per day to replace the loss in menstrual fluid. Therefore at least 2 mg. of iron would have to be absorbed each day to replace the losses in urine, feces, bile, and menstrual fluid. On the basis of information available at present, women who have to replace iron from menstrual loss at the rate of less than 1 mg. per day can do so if they have an adequate diet. However, further studies are required to show whether larger amounts of iron can be absorbed, as will be necessary for some women who have higher losses. It seems likely that a gradual depletion of the iron stores will occur in these women and may eventually be reflected in their hemoglobin level.

## Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

### 95:3621-3716 (Dec. 8) 1951. **Partial Index**

Treatment of Aneurysm of Abdominal Aorta. I. Boerema.—p. 3622.
*Diagnosis of Bronchial Carcinoma: Results of Cytologic Examinations of Bronchial Secretion. B. K. S. Dijkstra.—p. 3627.
Combination of Developmental Disturbances in Region of Umbilicus. J. Hage.—p. 3636.
*Vitamin $B_6$ in Treatment of Epilepsy. W. Ernsting and T. P. Ferwerda. —p. 3643.

**Cytological Examination of Bronchial Secretion.**—The cytological examination of the bronchial secretions of 198 patients revealed bronchial carcinoma in 34. Fourteen of these were revealed by the cytological test only. Of 48 bronchial carcinomas finally found, only 3 were not detected by the combined anatomic and cytological examination. One false positive test was obtained. The author stresses the advantages of the cytological test, and says that it should be performed whenever there is even the slightest suspicion of bronchial carcinoma.

**Pyridoxine in Epilepsy.**—Observations on animals having proved that the lack of pyridoxine (vitamin $B_6$) in the diet leads to development of epileptic attacks, it had been used by some observers in treatment of patients with petit mal and of some who had both petit and grand mal attacks. This paper reports on the use of pyridoxine in 14 patients from 2 to 17 years old. All had *petit mal* and one also grand mal epilepsy and had not responded to treatment with various antiepileptic drugs and ketogenic diets. In five of these the attacks disappeared and three others showed improvement, but the other six had no decrease in the number of attacks. The pyridoxine was given in doses of 20 mg. from three to six times a day.

## Nordisk Medicin, Stockholm

46:1811-1846 (Dec. 5) 1951. **Partial Index**

Acute Anuria in Connection with Pregnancy. F. Berglund and L. Werkö. —p. 1814.
Age Incidence in Cancer of Uterus: Value of Cytological Investigations. R. Bredland.—p. 1820.
Cancer of Body of Uterus. R. Bredland.—p. 1822.
*Myoma After Menopause. J. A. Abolins.—p. 1825.
Pernicious Anemia, Resistance to Liver and Acquired Hemolytic Anemia. N. Bergqvist.—p. 1828.
"Palindromic Rheumatism." E. Carsten Astrup.—p. 1830.

**Myoma After Menopause.**—Of the 29,092 patients treated in the gynecologic department of the Sabbatsberg Sjukhus from 1941 to 1950, 1,990 had myomas, and in 113 of these menstruation had ceased a year or more before. Most of them were aged between 51 and 55; the youngest was 44, the oldest, 79. Bleeding, pain, and bladder distress were the commonest symptoms. In 12% the myoma was an accidental discovery. The myomas varied from the size of a goose egg to tumors extending to the xiphoid process. Operation was done in 102 cases; supravaginal amputation, with or without salpingo-oophorectomy, was the method in 59 cases. One death occurred. Abolins says that myomas after the menopause that give rise to symptoms in the form of bleeding, pain, growth, and bladder discomfort should be treated operatively, partly because 15% are malignant or combined with other malignant tumors, partly because the malignancy of the growth cannot be determined without operation and pathological examination.

## Prensa Médica Argentina, Buenos Aires

38:3185-3258 (Dec. 7) 1951. **Partial Index**

*Cortisone and Corticotropin (ACTH) in Lupus Erythematosus Disseminatus. J. M. M. Fernández.—p. 3186.
Spontaneous Emphysema of Mediastinum. E. G. Fongi.—p. 3203.
Thiosemicarbazone in Treatment of Some Forms of Cutaneous Tuberculosis. A. A. Cordero and S. O. García.—p. 3224.
Classification of Essential Arterial Hypertension. A. P. Real.—p. 3227.

**Cortisone and Corticotropin in Lupus Erythematosus Disseminatus.**—During 1951 the author observed 12 cases of lupus erythematosus disseminatus and 10 cases in adults are described here. The disease was acute in the nine women and subacute in the man. All the patients had typical or atypical cutaneous lesions, generalized symptoms suggesting an acute infection associated with anemia, leukopenia, nephritis, arthritis, hepatomegaly, splenomegaly, cervical adenitis, and in some cases axillary and inguinal adenitis. Two patients had pleuritis and pericarditis. Two had pericarditis and peritonitis in two relapses. Three patients had meningitis and two of these had epileptiform crises, delirium, and acute nervous agitation during the last 48 hours before death. Penicillin and streptomycin were administered in the usual doses to four patients. In three cases the patients died either in the course of the first bout or in a relapse following temporary improvement. Only the man with subacute lupus erythematosus is in remission two years after discontinuation of treatment. Six patients had intermittent treatment with cortisone and corticotropin (ACTH). Cortisone was given in an average daily dose of from 60 to 80 mg. up to a total dose of 1 to 3 gm. Corticotropin was given in an average daily dose of 60 to 80 mg. in four divided doses, up to a total dose of 740 mg. The results of treatment were good but transient in all cases. The treatment is symptomatic. Three patients are still under treatment after relapse, and three died during relapse, but the span of life after treatment seemed to be longer than in cases in which the previous usual symptomatic treatment was employed.

## Riforma Medica, Naples

65:1241-1268 (Nov. 17) 1951

*Significance of Enlargement of Parotid Gland in Cirrhosis of Liver: Biopsy Study. M. Sposito and R. Cheli.—p. 1250.
Case of Lithiasis in Horseshoe Kidney (Fusion of Kidneys at Upper Pole). A. D'Alessandro.—p. 1253.

**Study of Liver and Parotid Gland by Biopsy.**—Biopsy of an enlarged parotid gland and of the liver was performed in 10 patients to determine the relationship between the parotid gland and lesions of the liver, and to study the eventual histological differences of the parotid gland in patients with and without hepatic lesions. Six patients had portal cirrhosis, and one each sclerosis of the liver due to chronic brucellosis, sprue, diabetes, and heart decompensation associated with syphilis. Biopsy of the parotid gland was painless and was performed by introducing an aspirating needle, 2 mm. in diameter, through a small incision made in the enlarged area that had been previously anesthetized with a 2% solution of procaine hydrochloride. All biopsies showed hyperplasia, with a slight increase in adipose tissue. The cell structure was not altered. The liver biopsy confirmed the clinical diagnosis in the first six patients. Diffuse small cell infiltrations and increase of the connective tissue that surrounds the lobules were observed in the patient with sclerosis of the liver due to brucellosis. Only small signs of fat degeneration were present in the patients with sprue and diabetes. Hyperplasia of the connective tissue was slight in the patient with heart decompensation. Reactions to the liver functions tests were abnormal in the first seven patients and normal in the others. Only in the patient with heart decompensation was the enlargement of the parotid gland not associated with lesions of the liver, and its pathogenesis is difficult to explain. But, as a rule, hyperplasia of the parotid gland suggests the presence of manifest or concealed hepatopancreatic disturbances.

65:1297-1324 (Dec. 1) 1951

Rheumatic Cardiopathy and Work Activity. S. Caccuri.—p. 1299.
Probable Consequences of Topical Use of Various Antibiotics. N. M. Sciannameo.—p. 1305.
*Eosinophil Response and Thorn's Hematologic Test with Epinephrine in Surgical Patients. S. Amante and M. Mancini.—p. 1310.

**Thorn's Test in Surgical Patients.**—Thorn's test with epinephrine was used to study the level of circulating eosinophils in 120 patients who submitted to various types of surgical intervention. Epinephrine in doses of 0.3 mg. was administered intramuscularly three to four hours before measuring the fall in eosinophils. In 70 patients whose preoperative level of eosinophils was normal, Thorn's test was carried out only postoperatively. Twelve to 24 hours after the operation pronounced eosinopenia (average fall of 76.5%) was present in 67 patients, suggesting increased adrenocortical activity. Insufficient activity of the adrenal cortex was known to be present in the other three patients in whom the number of eosinophils had remained unchanged. Administration of adrenocortical preparations, while improving their general condition, did not alter the number of eosinophils. In the second group of 50 patients the test was carried out before and after the operation. The preoperative test revealed a normal eosinophil response (average fall of 70.15%) in all patients. Twenty-four hours after the intervention this eosinopenia was still present or had decreased in 44 patients, while in the other 6 the eosinophil level had returned to the values recorded before the preoperative injection of epinephrine. Thorn's test performed in many of these patients induced a further fall in the number of eosinophils, which decreased again when a second test was performed 48 hours after the operation. In those patients in whom the test was performed for the first time 72 hours after the operation, the level of eosinophils (average fall of 74%) indicated that the adrenocortical activity was normal. In both groups the decrease in the number of eosinophils was not proportional to the severity and length of the intervention, and was not influenced by type of anesthesia, age, and sex of the patient. Thorn's test performed preoperatively may be a good preoperative prognostic factor, while the comparison of preoperative and postoperative eosinophil levels may constitute a good postoperative prognostic aid. According to the author, the best procedure is to perform the entire test preoperatively and only to count the eosinophils after the operation. The prognosis will be favorable if the eosinopenia that was induced by the preoperative injection of epinephrine is still present or has become more pronounced after the operation.

## Sang, Paris

22:701-780 (No. 9) 1951. **Partial Index**

- *Involvement of Small Vessels in Neonatal Hemorrhages. A. Minkowski. —p. 701.
- Hereditary Anomalies of Blood Disorder in Cooley's Mediterranean Anemia. E. Schwarz-Tiene.—p. 713.
- New Studies on Electrophoretic Mobility of Leukocytes. S. Bazin and R. Robineaux.—p. 730.
- *Morphological and Experimental Studies on Pathogenesis of Acute Myeloid Leukemia: I. Experimental Heterologous Transmission of Acute Human Myeloid Leukemia. F. Mas y Magro.—p. 756.
- *Id.: II. Blood Changes Following Experimental Transfusion of Acute Myeloid Leukemia. F. Mas y Magro.—p. 760.

***Involvement of the Small Vessels in Neonatal Hemorrhages.***—Pathological study of 80 cases of intracranial hemorrhage in premature infants shows that bleeding is chiefly cerebral and that there are numerous small centers of vascular rupture. Measurements show that resistance of small vessels in infants born at term is abnormally high (50 cm. Hg) as compared to that of the adult; in premature infants there is a relative vascular fragility that is proportional to the weight of the infant (10 cm. Hg in one weighing 900 gm.). The effects of various substances given to the mother at the beginning of labor to increase vascular resistance in the fetus have been studied and the acetate of racemic α-tocopherol (given at least an hour before the end of labor) has been found effective. In a series of 105 premature infants whose mothers were given from 600 to 900 mg. of racemic α-tocopherol acetate, vascular resistance was increased and only four intracranial hemorrhages occurred. In a control series hemorrhages occurred in 12. Opinions on the value of vitamin K differ; if the prothrombin level in the newborn is low, it should be systematically given, but its administration alone will not prevent or stop more than a few of the hemorrhages of birth, and supplementary measures are needed. Capillaroscopy in the newborn reveals that the superficial vessels are thick, dilated, and dense at first, gradually becoming filiform from about the 5th to the 10th day. In infants born at term they tend to disappear by the third week, but in premature infants weighing less than 1,800 gm. they can still be seen in the seventh or eighth week. The oral administration of 2 mg. of racemic α-tocopherol acetate daily for three days to the newborn causes the outlines of the vascular network to disappear in from 4 to 5 days instead of 25 to 45 days, and produces, much more rapidly than in the controls, a filiform appearance of the vessels that is due to vasoconstriction, while at the same time vascular resistance is increased from 10 to 20 cm. Hg. The relationship between vasodilatation and vascular fragility in the newborn is clear, and their importance as factors in the hemorrhages of birth should lead to further study of the problem.

**Pathogenesis and Transmission of Acute Myeloid Leukemia.**—Proof that acute myeloid leukemia is caused by a virus is found, according to Mas y Magro, in the fact that it has been transmitted from man to guinea pigs, and subsequently from guinea pig to guinea pig. Transmission is accomplished when inoculation of leukemic material (either blood or bone marrow) is carried out by subepidermal scarification. Earlier attempts at transmission by injection failed because serum and blood plasma, as well as the secretions and cells of serous cavities, have an inhibiting effect on the leukemic virus. Viruses are known to give constantly positive results when inoculated by scarification. Material obtained by scraping from scarifications in an inoculated guinea pig will transmit the disease to another guinea pig if inoculation is carried out within one or two days. From the third day on transmission does not take place, because the virus has entered the blood and subsequently the bone marrow. Changes in the mesenchymatous cells of the dermis of the host animal also suggest that the loss of transmissive power after the second day results from adaptation of the virus to the metabolic conditions of the host. Changes produced by transmission in the blood and marrow of guinea pigs parallel those in acute human leukemia. No other pathological changes take place in the inoculated animals, except a loss in weight that usually amounts to half the original weight of the animal. About 95% of the test animals die in from 9 to 28 days, whether transmission is from man to animal or from animal to animal.

**Blood Changes Following Transmission of Acute Myeloid Leukemia.**—The acute granulocytic form of myeloid leukemia, which is always fatal, shows a blood picture of anemia with between 70% and 80% neutrophils and sometimes even more. The number of leukocytes does not exceed 25,000, and moderate leukopenia may occur. The outstanding characteristic is the presence of from 8% to 16% atypical progranulocytes, with peroxidase granules. They are irregularly distributed, often forming a single clump in the nucleus. In guinea pigs inoculated with blood from patients who had acute myeloid leukemia, whether myeloblastic or granulocytic, an extremely acute myeloid leukemia of the granulocytic type developed that was characterized by neutrophilia and the presence of atypical progranulocytes like those in man. The number of leukocytes tended to fall, but leukopenia did not occur. Identification of the progranulocytes depends on the staining of the peroxidases and requires differentiation between the peroxidase granules of the monocytes, which are fine and sometimes irregular, and those of the progranulocytes, which, like those of the neutrophils, are large and dark green. The development in guinea pigs of myeloid leukemia of the acute granulocytic type, although the blood with which they were inoculated came from a patient with the myeloblastic type, suggests that the same virus causes both these types in man.

## Schweizerische medizinische Wochenschrift, Basel

81:1291-1312 (Dec. 29) 1951. **Partial Index**

- *Surgical Treatment of Focal Epilepsy. G. Weber.—p. 1291.
- Cobalt in Treatment of Hypochromic Anemias. H. Dittrich.—p. 1296.
- Investigations on Production of Lupus Erythematosis Cells in Normal Blood. T. Inderbitzin.—p. 1298.
- Secondary Effects in the Course of Treatment of Tuberculosis with *p*-Aminosalicylic Acid. L. Morandi, H. Ochsner and A. Neuenschwander.—p. 1301.

**Surgical Treatment of Focal Epilepsy.**—The radical excision of a scar, even if it is apparently the focus of an epileptic attack, is justified only when the lesion produced by the excision is less harmful than the original focus. Weber reviews the results obtained by others, particularly by Penfield, with surgical treatment of focal epilepsy and then reports results obtained at his clinic with the surgical treatment of 88 epileptic patients who were selected from among a total of 1,169 cases. A total of 75 of these 88 were treated before the introduction of electroencephalography, but in the last 13 both electroencephalography and electrocorticography were employed to detect the epileptogenic focus. In 59 of the first group either circumscribed lesion of the brain was found that presumably represented the epileptogenic focus, or electrical stimulation of an area produced an epileptic attack that corresponded to the spontaneous attacks. The epileptogenic focus was excised in 43 of the cases; in the remaining 16 patients only adhesions in the region of the focal lesions were removed because excision did not seem advisable. In 16 other patients no changes could be seen or elicited electrically in the exposed portion of the brain, and no tissue was excised. The epileptogenic focus was found in all of the 13 patients who were operated on under electrocorticographic control, and removal was attempted in 10 of these patients. Summarizing his experiences with the surgical treatment of epilepsy, the author says that a certain percentage of epileptic patients will become completely or at least temporarily free of attacks, and in others the number of the attacks will be reduced. The efficacy of the surgical treatment varies with different investigators, but complete cures are not frequent. Even Penfield, with his great experience, obtained complete freedom from attacks in only about a fourth of those in whom he was able to remove the epileptogenic focus. Weber's results are considerably less favorable, and he feels that surgical treatment should be tried only when the best managed medicinal treatment does not restore the patient to a bearable condition. Furthermore, the epileptogenic focus must not be the result of a diffuse progressive brain lesion. The patient and his relatives should be told that surgical treatment may give relief but the outcome cannot be foretold.

# BOOK REVIEWS

**Air War and Emotional Stress: Psychological Studies of Bombing and Civilian Defense.** By Irving L. Janis. Rand Corporation Series. Cloth. $5. Pp. 280. McGraw-Hill Book Company, Inc., 330 W. 42d St., New York 18; Aldwych House, Aldwych, London, W.C.2, 1951.

This monograph outlines the results of a technical study of the reactions of persons subjected to conventional and atomic bombing during World War II. The study was undertaken to evaluate the psychological effects of air warfare and delineate certain major problems that may arise in planning for the defense of the United States against air attack.

The results are based on a combination of qualitative examinations of individual eyewitness accounts of bombing disasters and analyses of official reaction surveys, such as the United States Strategic Bombing Survey.

Although the evidence presented as to the results of conventional and atomic bombing is too fragmentary for many conclusive deductions, it indicates that overt panic and disorganized behavior occurring in Japan and Europe was localized and that such behavior was not widely prevalent among those who survived. The book indicates that temporary and permanent emotional disturbances were greater among inhabitants of European cities that were heavily bombed than among persons residing in Hiroshima and Nagasaki.

Despite the shortcomings of available evidence, the author concludes that air attacks of the type employed against civilian communities during World War II produced only a slight increase in chronic psychopathological and psychosomatic disorders. Mental breakdown, panic, and mass demoralization rarely materialized during World War II, and, although shock did occur on a sizable scale, most patients recovered fairly rapidly.

If, however, at some future time, large scale A-bomb attacks, as contrasted with the type of bombing employed during World War II, are launched against the United States, it is agreed that the psychological impact upon the American people might prove to be as shattering as the physical devastation. As pointed out by Mr. Janis, the ability of a community to minimize the disorganization and fear caused by air raids will be dependent largely on previous measures taken to insure emotional control and the availability and efficiency of rescue and medical facilities as well as social service and welfare organizations.

The two main ways recommended for insuring emotional control are: (1) preparatory education of the general public preceding the outbreak of atomic attacks and (2) on-the-spot communications from an authoritative source immediately following an atomic attack.

The results of the study presented in the book are of intrinsic academic interest; however, they are particularly valuable as substantiating evidence of the requirement for developing effective civil defense policies and for appraising the political, social, and moral consequences of atomic warfare.

**Clinical Allergy: A Practical Guide to Diagnosis and Treatment.** By Samuel J. Taub, M.D., F.A.C.P., Professor of Medicine and Chairman of Department of Allergic Diseases, Chicago Medical School, Chicago. Second edition. Cloth. $4.50. Pp. 276. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33d St., New York 16, 1951.

The second edition of this manual was written with the hope that "this handbook will continue to provide the general physician with a clear, simple, and accurate guide to effective diagnostic and therapeutic measures that he can readily apply in his own practice." There are no illustrations. The omission of a comprehensive bibliography is by design. The English composition is simple, clear, and easy to read. The author has practiced and has taught in the field of allergy successfully for many years. There are 13 chapters and an appendix. The appendix contains much practical information about sources of pollen, inhalant, ingestion, and contact allergens. There are useful diets and recipes. In general, the book accomplishes its purpose of presenting concise information about the field of allergy. It is doubtful if anyone could accomplish this to the satisfaction of a majority of experienced allergists.

The chapters on immunochemistry, dynamics of allergy, hayfever, colds, drug allergy, and serum sickness are more effective than the chapters on skin allergy, miscellaneous conditions, and parts of the chapters on asthma. The publisher has been remiss in permitting two sections on pathology to be printed in the chapter (pp. 90 and 99) on asthma. This plus redundancies and sketchy discussions of infectious asthma call for complete revision of the chapters on asthma. The two paragraphs on cortisone and the sentence on corticotropin ("Acthar") are inadequate. There is a table on page 205 with no legend or heading. The sentence at the top of page 206 has no connection with the preceding or succeeding material. An outline for cutaneous tests preliminary to the administration of antiserum is in the section on allergy from blood transfusion. The propriety of including a chapter on the preparation of extracts in a short clinical manual is debatable. In one reading of the book, the reviewer made 51 critical notations, most of them, however, relatively unimportant.

Whereas the manual contains a lot of practical information, simply presented, it does not fully meet the need for this type of book. There is much room for improvement; however, the same thing can be said for similar efforts by other authors. Allergy is a large subject. In spite of the criticisms mentioned in this review, the author's efforts to simplify it have, in general, been successful.

**Practical Procedures in Clinical Medicine.** By R. I. S. Bayliss, M.A., M.D., M.R.C.P., Medical Tutor and Senior Medical Registrar, Postgraduate Medical School of London, London. Cloth. 25s. Pp. 445, with 62 illustrations. J. & A. Churchill, Ltd., 104 Gloucester Place, Portman Sq., London, W.1, 1950.

This volume is designed to provide senior students, house physicians, registrars, and general practitioners with descriptions of the laboratory and diagnostic procedures commonly used in studying patients. The first chapter describes, in detail, the types of syringes available for drawing blood, the size of needles to be used for subcutaneous and intravenous injections, and instructions on how to use a glass sliver from a broken microscope slide to prick the finger. The detail and arrangement is that of the usual nurses procedure book; diagnostic procedures and laboratory tests are grouped according to organ systems. Paracentesis is described in the chapter on disorders of the alimentary tract, and thoracentesis, in the chapter on disorders of the respiratory system. In addition to chapters on disorders of the alimentary tract, cardiovascular system, blood, liver, respiratory system, central nervous system, and endocrine glands, there are chapters on the indications for and technique of blood transfusion and on the place of radiology in clinical medicine. The last chapter combines such miscellaneous subjects as a table of atomic weight, diet tables, and a posologic table giving the average doses of over 400 drugs. Some of the drugs, such as Parrish's food (syrupus ferri phosphatias compositus), grey powder (mercury with chalk), and senna pods would only be of historic interest to physicians. The chapter also includes the average postmortem weights of organs, tables of weights and measures, and the method of performing vaccination.

The techniques of many common procedures, such as estimation of blood pressure, venesection, and digital examination of the rectum are described in great detail; the descriptions of other procedures, such as catheterization, lumbar puncture, and artificial pneumothorax are too sketchy to be of value to a novice. The more common tests used in the examination of blood and urine are described in the appropriate chapters, but with curious omissions. The technique for counting erythrocytes is given in detail, but there is no description of the cells as they are seen in a fixed smear. No formulas for reagents are supplied. The author

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disclaims any intention of providing a text of clinical pathology, so that, for many tests, instructions are simply given to collect the specimen and send it to the laboratory. The paragraphs in each chapter on pathological physiology and the interpretation of analyses furnished by the clinical laboratory are too brief and in too general terms to provide a satisfactory basis for deciding when a particular test might be of value. This book is not of much value to either students or practitioners.

**The Collected Papers of Adolf Meyer. Volume III: Medical Teaching.** General editor, Eunice E. Winters. With introduction by Franklin G. Ebaugh, M.D., Professor of Psychiatry, the University of Colorado, Boulder and Denver. Cloth. $30 per set of 4 volumes. Pp. 577. Johns Hopkins Press, Homewood, Baltimore 18; Oxford University Press, Amen House, Warwick Sq., London, E.C.4, 1951.

These papers logically follow those on psychiatry (volume 2) in that they are mainly concerned with Meyer's psychiatric concepts and his methods of teaching. In these papers, Meyer develops the thesis that the patient should be considered as a whole, as a complex, integrated unit. In his teaching, he decried the method of choosing one complaint, one aspect of the patient's problem, and examining it from the viewpoint of any one particular system of psychiatry. The patient is a unit; the methods of approach should be unfettered, unlimited, and pluralistic. This type of thinking makes it easy to understand why Adolf Meyer placed little value on nosological psychiatry. His impatience with the rigidity of most systems of psychiatric classification was a prime mover in the establishment of his own more flexible system.

Dr. Meyer has served students of medicine and beginners in psychiatry well by the formulation of examination charts, life charts, and personality studies. The life charts, in their original form, are seldom used in present day psychiatry, but the examination tables still serve as models of orientation to most courses of psychiatry. The publication of this volume comes at an opportune moment, when psychiatric facilities are being extended and more attention is being focused on the teaching of psychiatry in the medical schools. Any teacher who is responsible for planning the curriculum of a medical school would profit by reading Meyer's essays. The volume ends with a series of biographical sketches by Dr. Meyer of the leading neurologists and psychiatrists of his day. Most of these men, such as Marie, von Monakow, Kraepelin, and Forel were pioneers in the teaching of psychiatry, and it is appropriate to include their brief biographies in a book devoted to medical teaching.

**Daddy Was a Doctor.** By Lorena Owens. Cloth. $2.75. Pp. 221, with illustrations by Paul Galdone. E. P. Dutton & Co., Inc., 286-302 Fourth Ave., New York 10, 1951.

Not only the hill country of southern Tennessee but nearly every other section of the country has the counterpart of "Doc" Peters, a 1905 graduate of a small school who knew the art of medicine better than the science, and who knew people better than anything else. This tale is a character sketch of Doc; his wife, mama; his mother, ma; and most of the patients found in a small town practice as seen through the eyes of a married daughter who comes home for the summer.

Although he was not the scientist a modern physician is expected to be, Doc knew his patients, hated hypochondriacs, and did a good job of mending the ills of his community. The humor is derived from the circumstances under which he worked, the partnership with Mama, and the way their patients expressed high regard for both of them. We have all known at least one Doc Peters. It is nice to have this tribute to a passing generation of simple persons who led complex lives.

**Vertebrate Sexual Cycles.** By W. S. Bullough, D.Sc., Sorby Research Fellow of Royal Society of London. Cloth. $1.50. Pp. 117, with 12 illustrations. John Wiley & Sons, Inc., 440 Fourth Ave., New York 16; Methuen & Co., Ltd., 36 Essex St., Strand, London, W.C.2, 1951.

This little volume is a brief but well-worded résumé of current information on the sexual cycles and breeding habits of vertebrates. Although its broad coverage is designed to appeal to the zoologist rather than to the medical man, the book contains much interesting factual information in an easily assimilable form.

**The Changing Years: What to Do about the Menopause.** By Madeline Gray. Cloth. $2.75. Pp. 224. Doubleday & Company, Inc., Garden City, New York, 1951.

The author has presented the problems of the menopausal woman in a clear and sympathetic manner. She has gathered information from a number of reliable sources and presented it in simple straightforward language, which is easy to understand.

The relationship of the ductless glands to the phenomena of puberty, menstruation, and menopause is clarified, and many superstitions are explained and discounted. The relationship between the patient and physician is stressed, and the help women can get from medical treatment and the means by which they must help themselves is outlined. Many of the vague fears regarding mental disease, cancer, high blood pressure, and arthritis are shown to be groundless. The symptoms of the menopause and their transitory nature are pointed out. Hormone treatment is outlined and the origin and action of hormones considered. The conflict between the well-bred woman's early training in regard to sex and what is normally experienced in married life and some mistaken ideas about views of the church in these matters are explored, and quotations from important clerical persons are presented. The importance of the preservation of a trim figure and the ability to do so are pointed out, and specific dietary instruction is included. A chapter on the changes in the male sex life is included, and the similarity of the problems of the two sexes as well as their differences is well presented.

The book is well written and informative and should be useful as a lay educational medium in this field.

**The Practice of Endocrinology.** Edited by Raymond Greene, M.A., D.M., M.R.C.P. Second edition. Cloth. $12.50. Pp. 389, with 81 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; Eyre & Spottiswoode, Ltd., 14-16 Bedford St., Strand, London, W.C.2, 1951.

This is an American reprint of a popular British text that originally appeared under the authorship of six prominent endocrinologists and the editor of the present edition, who has undertaken the entire revision of this second edition. This reduction in the number of authors has resulted in greater unity, which is always difficult to attain with multiple authorship. The book is intended for the general practitioner, and, for this reason, the theoretical sections in the earlier edition have been deleted in favor of new matter of purely practical interest. The result is a concise, well-written outline of clinical endocrinology. The subject is well covered; the style is clear and succinct; the illustrations are excellent; and the opinions expressed are sound and up-to-date. Despite some criticisms, such as the omission of mentioning the use of cortisone in the treatment of Addison's disease, the failure to mention the Sulkowitz reagent in regulating the dosage of dihydrotachysterol in hypoparathyroidism, and an occasional statement to which exception may be taken, this book can be recommended as a desirable addition to the library of the general practitioner.

**Treatment by Manipulation.** By H. Jackson Burrows, M.D.. F.R.C.S., F.R.A.C.S., Orthopædic Surgeon, St. Bartholomew's Hospital, London, and W. D. Coltart, M.B., F.R.C.S., Assistant Orthopædic Surgeon, St. Bartholomew's Hospital. Second edition. Cloth. 12s. 6d. Pp. 80, with 29 illustrations. Published on behalf of "Practitioner" 5 Bentinck St., London, W.1, by Eyre & Spottiswoode, 15 Bedford St., Strand, London, W.C.2, 1951.

This book deals chiefly with the manipulative treatment of chronic sprain and strain. It is stated that "Many members of the medical profession know too little of the selection of cases for manipulation, its technique and results which may be expected from it." This monograph concerns itself with practical and elementary matters rather than a detailed and hypothetical consideration of the subject. The book contains headings such as the "Selection of Cases for Manipulation" and "The General Management of Manipulation Cases." It is indicated that, for this type of manipulation, anesthesia is invariably used. The dangers and failures of manipulation are discussed. Afflictions of individual parts of the body and their manipulation are then discussed; good illustrations that show the techniques described in the text are included. This book will be of great interest to the orthopedic surgeon.

**Studies of Undernutrition, Wuppertal 1946-9.** By members of Department of Experimental Medicine, Cambridge, and associated workers. Medical Research Council Special Report Series no. 275. Paper. 12s. 6d. Pp. 465, with illustrations. His Majesty's Stationery Office, P. O. Box 569, London, S.E.1, 1951.

This volume was written by the members of the Department of Experimental Medicine at Cambridge, England, and associated workers, who had the opportunity to study human nutrition from the summer of 1946 to the latter part of 1948. The base of their work was the laboratories and hospitals at Wuppertal, a community of over half a million persons, just south of the Ruhr, in Germany. The leader of the team was Dr. R. A. McCance, who was assisted by Dr. E. M. Widdowson. The book is divided into 29 chapters, and covers many of the technical problems of nutritional difficulties that have been seen in recent years in wartorn countries. The volume is distinguished by the exceptional coverage of the historical literature in this field and is valuable because of the documentation. The discussions of the physical findings, chemical laboratory work, and the conclusions based on them are conservative, as would be expected from this authorship; for example, the discussion of hunger edema recognizes the protein, vitamin, and mineral factors, the anatomic and dynamic features of importance, the influences exerted by several endocrine activities, and the rational relationship of several of these forces to each other.

In considering some of the disturbances of the nervous system, it is striking that although the evidence suggests frequent and significant reduction in circulating calcium in the blood, the authors do not conclude that this is a factor in the exaggerated reflex responses. There is a tendency to attribute this reflex response to emotional disturbances, which are obviously a significant part of the historic background of the persons studied. In searching for new and more satisfactory objective evidence of nutritional status, the authors gave much attention to the study of serum cholinesterase. They include some results of experimental work with animals, and are inclined to think this a useful technique, although they do not think it indicative of any particular type of malnutrition. There is interesting evidence of decalcification of the skeleton, although the roentgenographic evidence is not as impressive as the chemical studies. A fascinating fraction of the study is the series of observations on the response to unlimited food of persons who had been deprived for a long time. Physical, chemical, and psychological responses are discussed, and additional light is thrown on the nature of the nutritional deficits that have incurred. In addition to a number of line drawings, the appendix includes 62 interesting plates that illustrate the features of the volume. This work is an important item in any library that endeavors to have the original data and recent comments on human malnutrition.

**Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association, with the Comments That Have Appeared in The Journal of the American Medical Association.** Cloth. $2. Pp. 106. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W.C.2; 2083 Guy St., Montreal, 1950.

The report of the 1949 annual meeting of the Council, included in this reprint, outlines the initiatory steps that eventuated in some of the other reports appearing in this small but valuable reprint. It may be safely assumed that other deliberations detailed in this particular report will result in the considered and definitive action for which the Council is noted. Perusal of this report as well as of the entire reprint is recommended, especially to those who are not familiar with the Council's valuable work and the increasing emphasis given, in recent years, to forward looking action on the frontiers of medical progress.

The work of two of the Council's special committees is the subject of two important reports: that of the Committee on Research, dealing with cancer and steroid hormone therapy in mammary cancer metastatic to bone, and that of the newer Committee on Pesticides, dealing with the pharmacology and toxicology of certain organic phosphorus insecticides. The first study is a continuation of work begun by the Committee in 1949; this study, which will be continued, has already resulted in valuable clarification of our knowledge of cancer. The second study represents the start of an organized and definitive text on pesticides; this should be an important contribution to the field of preventive medicine.

In the report on the status of BCG vaccine, it is concluded that further studies are needed before general use of this agent in the United States can be recommended. The report on chemotherapy of tuberculosis, third in a series representing cooperative study of this subject with the Veterans Administration and the Navy, covers 7,000 patients treated by 22 surgeons, using streptomycin and dihydrostreptomycin. It concludes by emphasizing the importance of surgical procedures in connection with chemotherapy, calling attention to the reduction of toxic manifestations by the use of a 1 gm. (or less) daily dose and noting the delayed development of resistant microorganisms by concurrent administration of *p*-aminobenzoate.

Two other status reports are on antihistaminics in the treatment of colds and on adrenal and pituitary hormones in the treatment of arthritis and other diseases. The first report analyzes the work of investigators on 2,357 cases, points out that available data are only suggestive of beneficial effects, and outlines a technique for further investigation. The report on adrenal and pituitary hormones, cortisone and corticotropin (ACTH), gives the essentials of the history and composition of these agents, points out that improvement lasts only as long as they are administered, and emphasizes the danger of their continued use and "rebound" on discontinuance. The reprint also contains reports on routine Council actions.

**Epileptic Seizure Patterns: A Study of the Localizing Value of Initial Phenomena in Focal Cortical Seizures.** By Wilder Penfield, C.M.G., M.D., D.Sc., Professor of Neurology and Neurosurgery, McGill University, Montreal, and Kristian Kristiansen, M.D., Assistant Surgeon, in charge Neurosurgery, Oslo City Hospital, Oslo, Norway. Cloth. $3. Pp. 104, with 18 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto, 2B, 1951.

Where in the brain do the seizures of epilepsy originate? This question is of profound importance to students of the brain and to clinicians who wish to understand and treat epilepsy. The authors have analyzed data from 259 patients having focal seizures. In 222 of these, the point of origin was identified either by reproduction of the initial phenomenon by cortical stimulation by electroencephalographic recordings from the cortex or by observed abnormality at operation (usually atrophy or scars) of the cortex. The information derived relates to the superficial layer of the brain only; it is succinctly presented in a well-printed monograph. There are 18 drawings in which the location of the initial symptom of each patient is represented by a circle on the cerebrum. There are 33 references. The size of the book is no measure of the many thousands of hours that must have been spent in meticulous study of these patients. Initial seizure symptoms include unconsciousness and motor, sensory, autonomic, psychical, and miscellaneous phenomena. For a detailed description of techniques and case reports, the reader will need to consult previous books and articles by the principal author and his various associates. In the concluding chapter on clinical application, the authors limit the word epilepsy to cases "in which no brain lesion or cortical focus can be demonstrated," and in which "the electroencephalogram demonstrates bilateral three per second synchronous waves." This would seem to be too narrow a restriction; in fact, the subject of classification and terminology requires more than a few pages and discussions of concepts of epilepsy should embrace more than the areas of origin.

**Speech Training: A Handbook for Students.** By A. Musgrave Horner. Cloth. $3.75. Pp. 176, with 8 illustrations. Philosophical Library, Inc., 15 E. 40th St., New York 16, 1951.

The author of this book is a lecturer on speech training at Stranmillis College, Belfast. The book, intended mainly for teachers and students, provides material for practice and demonstration in speech training. Although it does not seem to be written for the speech therapist who handles patients such as those afflicted with cerebral palsy, the book does contain many practical points that may be used in speech training.

# QUERIES AND MINOR NOTES

## REMOVAL OF A NORMAL APPENDIX

To the Editor:—*A difference of opinion exists among the physicians of this hospital concerning criteria to be used in determining whether an appendectomy should be performed during a laparotomy or a cesarean section for ectopic pregnancy. Some think that the appendectomy could be performed during such a time with no danger or adverse side-effects; others believe that an appendectomy should not be performed under those circumstances. Can you supply information on this question?* *M.D., Venezuela.*

Answer.—The routine removal of a normal appendix at laparotomy is not advisable. Regardless of the care with which the appendix is removed, the procedure increases the hazard of the operation and may increase the likelihood of postoperative complications. Simple operative procedures performed on young persons, such as oophorocystectomy, may include appendectomy without increased risk. An abnormal or adherent appendix should be removed if the procedure will not unduly complicate the patient's recovery.

Removal of the appendix at cesarean section is unwarranted. Abdominal delivery may be accompanied by considerable blood loss and extensive soiling of the peritoneal cavity by amniotic fluid and its contents. To invade the gastrointestinal tract, even with great care, is to add to the danger of infection. Present reliance on miraculous antibiotic drugs must not be allowed to diminish the importance of following sound surgical principles developed in years of clinical experience.

## RETINITIS PIGMENTOSA

To the Editor:—*(1) What is the prognosis for retinitis pigmentosa in a 7-year-old boy? The Wassermann test reactions for himself and both his parents are negative. So far, no narrowing of the retinal arteries can be seen. No one else in his family has, or has had, this disease. (2) What is the consensus among ophthalmologists in America on the value of treatment by means of subconjunctival implantation of placental tissue done at six month intervals? I am told that this treatment is now widely used in European countries. The boy is already being given vitamin A, and his parents have been warned to watch for signs of vitamin A overdosage.* *M.D., India.*

Answer.—1. According to Fralick (Symposium: Primary Chorioretinal Aberrations with Night Blindness: Treatment and Conclusions, *Tr. Am. Acad. Ophth.* **54**:662, 1950), there are no available statistics showing what percentage of persons with this disease actually become blind. The earlier in life the disease becomes manifest, the more serious is the prognosis, generally; however, the progress of the disease is slow, and few persons completely lose all vision. 2. Subconjunctival implantation of placental tissue has never been widely used in this country. Gordon (Experimental Treatment of Retinitis Pigmentosa, *Tr. Am. Acad. Ophth.* **52**:191, 1948) used a variety of biogenic stimulators in the treatment of retinitis pigmentosa and found them to be without value. Saltzman and Haig (Treatment of Retinitis Pigmentosa with Cod Liver Oil Injections and Placental Implantation, *Arch. Ophth.* **43**:419, 1950) treated 27 patients with cod liver oil injections and subcutaneous implantation of preserved placenta. In no case was there a significant increase in visual acuity or in the scope of the visual field, and although a few patients showed subjective improvement, this was not confirmed by careful study.

## BIBLICAL HYSSOP AND PENICILLIN

To the Editor:—*Does the hyssop referred to in Psalm 51 "Purge me with hyssop, and I shall be clean: wash me, and I shall be whiter than snow," contain any penicillin?* *V. G. Logan, M.D., American Falls, Idaho.*

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—The hyssop mentioned in Psalm 51, verse 9, contains no penicillin and is not related to any fungus from which penicillin-like substances can be obtained. The impression that hyssop has something to do with penicillin is a misapprehension caused by curious philological and semantological circumstances. The Latin translation of the Bible, the Vulgate, reads as follows: "Asperges me hyssopo et mundabar" (Purge me with hyssop and I shall be clean). The Latin verb *aspergere*, means to sprinkle or scatter. It is the same word from which our English "aspersion" is derived. In Roman Catholic churches the sprinkling of holy water was performed by dipping into the water a round brush, to which the name of aspergill or aspergillum was given. The hyssop of the Bible was employed for a purely ritual purification involving the dipping of a bunch of hyssop in blood or water and sprinkling it. It happens that two of the commonest molds studied by mycologists are of the genus Aspergillus, a mold, the conidiophores of which resemble a round brush, and of the genus Penicillium, the conidiophores of which look like a tufted or pencil brush. It was therefore argued that, inasmuch as sprinkling with hyssop produced ritual cleansing, and inasmuch as the above molds are sources of valuable antibiotics, the hyssop and the molds were related not only in the ritual sense of the words but also in respect to their antibiotic or antibacterial properties. It is interesting that several species of the mold family Aspergillus have yielded penicillin-like chemicals. For instance, Adler and Wintersteiner published a paper entitled "A Reinvestigation of Flavacin, the Penicillin Produced by Aspergillus Flavus" (*J. Biol. Chem.* **176**:873, 1948). Penicillin-like chemicals have been found also in Aspergillus parasiticus and Aspergillus giganteus.

Answer.—A careful survey of the Old Testament, together with a perusal of the literature on botanicals, especially that of the time when the St. James version was written, does not reveal any evidence that hyssop (Hyssopus officinalis) has antibiotic properties. The continental variety of hyssop, known as Gratiola officinalis, was the species used in herbal medicine in Europe. It has a bitter, nauseating taste, and acts as a purgative, emetic, and diuretic when taken internally. In herbal medicine it was used for the treatment of dropsy among other diseases.

The hyssop that is frequently mentioned in the Scriptures (Exod. XIII: 22; Lev. XIV: 4, 6; Num. XIX: 6, 18; I Kings V: 13; Ps. LI: 9) was not Hyssopus officinalis. There is much dispute about just what herb was meant, but it would seem from the writings of Maimonides and others that the herb referred to was a variety of wild thyme that grows abundantly in Syria and Palestine and has similar medicinal properties to H. officinalis.

## WATER SOFTENERS

To the Editor:—*Is the addition of sodium chloride required in the manufacture of all varieties of water softeners? What chemical changes occur in softening water for domestic purposes? Is this softened water injurious to healthy persons when used for drinking purposes?* *M.D., Texas.*

Answer.—Sodium chloride is scarcely involved in common methods of water softening, either the lime-soda ash or zeolite processes. Some confusion has occurred because heavy brines are used in the rejuvenation of zeolite beds, but these do not enter the potable water. In the lime-soda ash procedure calcium hydroxide and sodium carbonate act on soluble compounds of

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calcium and magnesium, converting them to insoluble forms that are removed by filtration and settling. The lime alone is sometimes sufficient. If soda ash is added, small quantities of sodium chloride may form and remain in the potable water. The zeolites are double silicates of aluminum and iron with sodium bases; through their action, an exchange takes place with the unwanted calcium and magnesium. In both processes, the sodium appears chiefly as the sulfate. Many natural waters contain much more sodium chloride than that produced in water softening. If the medical demand is for wholly salt-free water, then distilled water should be used in place of either natural or softened water.

## GASTRIC HEMORRHAGE, EDEMA, AND CHLOROPHYLL

To the Editor:—*Is giving chlorophyll to counteract a repulsive odor contraindicated when gastric ulcers or hyperchlorhydria are evident? I have been giving it to a Negro man, who has edema that is so acute that a large necrotic area has sloughed out from the left leg. He has had two massive gastric hemorrhages and a history of gastric ulcer. At present, he has a slight hyperchlorhydria. What factor other than chlorophyll might be the cause of these massive hemorrhages?*

*DeWitt S. Lowe, M.D., Hiawatha, Kan.*

Answer.—There is probably no contraindication for the use of chlorophyll as a deodorant in this particular instance. Chlorophyll is generally considered to be nonirritating and is supposed to aid in the healing of skin wounds and ulcers by stimulating the production of normal granulation tissue. In fact, chlorophyll has been combined with aluminum hydroxide and magnesium trisilicate in an okra base for the treatment of peptic ulcer. The rationale for chlorophyll in this mixture is presumably to aid in tissue repair.

The etiology of the large necrotic area that has sloughed out from the left leg may have no relation to the hemorrhages from the stomach. There probably are two independent conditions, one, a lesion of the leg, and the other, hemorrhage from an upper gastrointestinal lesion. Roentgen studies should be made when the patient has stopped hemorrhaging from the stomach to determine whether a gastric lesion is present. It is difficult to determine the etiology of the lesion of the leg from the information given. It is assumed that the edema and ulceration is unilateral. It is possible that this person has a sickle cell anemia, with an associated gastric hemorrhage. Such conditions as a localized syphilitic ulcer, an ulcer associated with varicosities, and ulceration due to neoplasm or infection must be considered. It is advisable for the physician to have a roentgenogram taken of the leg in order to rule out the possibility of an osteomyelitis with suppuration and associated soft tissue ulceration. Finally, a retroperitoneal or abdominal mass, with involvement of the venous return from the lower extremities, should be considered.

## TREATMENT OF ANGIONEUROTIC EDEMA

To the Editor:—*A patient with urticaria responded well to food restriction, local therapy, and antihistamines. A short time later, an angioneurotic edema developed on one thigh and has remained unchanged; occasionally, it is painful. At first, some relief was afforded by rest, cold compresses and two tablets of "phenergan" (a new synthetic antihistaminic derived from phenothiazine) at night. A colleague has advised using a combination of rutin, 60 mg. and cevitamic acid, 300 mg., twice a day. Is this advisable?* *M.D., New Jersey.*

Answer.—It is not likely that the combination of rutin and cevitamic acid will be of much value, but, in lieu of any better therapeutic suggestions, it is worth a trial. If this is not beneficial, procaine or an antihistaminic, administered intravenously, might be tried. It is suggested that careful attention be given to the wearing apparel and habits of the patient that might produce minor pressure at the site where the angioneurotic edema develops. There is evidence that after urticaria, there is a "lability" of the vessels, so that at areas of minor pressure or trauma there will be exudation.

## GREEN DISCHARGE FROM BREAST

To the Editor:—*A 26-year-old white woman complains that she has been able to express fluid, about the color of dark green ink but a little thicker, from her left breast, for the past six months. For several years, she has been able to express a milky substance from her breast, but she has noted no tenderness or lumps in either breast. The patient is married, but she has not been able to become pregnant. Menstrual periods began at the age of 12 and have always been regular, about 28 days apart, and of 5 days' duration. Until the age of 19, she had cramps during her periods. At that time, a uterine suspension was done. Since then, she has had no dysmenorrhea. There is usually tenderness of the breasts during her periods. Physical examination, at present, shows normal results, with the exception of the dark green fluid that is expressed from the left breast when pressure is applied in the upper inner quadrant. There is a milky substance expressed at the same time. The breast is not tender, and masses are not palpable. The patient is not uncomfortable and has no pain from this complaint; however, she was afraid that she had cancer. Please suggest diagnosis and treatment.*

*Lloyd L. Long Jr., M.D., Ardmore, Okla.*

Answer.—It is not unusual for fluid of various colors to be spontaneously or artificially expressed from the nipples, and it is not unusual for this fluid to have a green hue. It usually signifies intraductal hyperplasia and/or papillomatosis, and it is often associated with so-called chronic cystic mastitis. There is no direct relationship between this type of discharge and cancer of the breast, although the two may exist coincidentally. Only when the discharge has a sanguineous character need there be concern. When a bloody discharge is present, malignant intraductal papilloma must be considered, even though no mass is palpable in the breast. Treatment consists of periodic observation to guard against the development of breast disease that would require more active therapy.

## NITRIC ACID FUMES AND NITROGEN DIOXIDE GAS

To the Editor:—*What hazards accompany the presence of nitric acid fumes and nitrogen dioxide gas in the atmosphere of a factory? What concentration of the gases (parts per million) is safe for the workers? How would the length of exposure affect them? What should be the period of exposure in the contaminated room and the length of the rest period between exposures? How can a patient be tested for excessive exposure? What criteria must be used to determine whether an employee may continue to work in a contaminated environment?* *Herbert Berger, M.D., Staten Island, N. Y.*

Answer.—For present purposes, disregarding the surface action of nitric acid, these two substances may be considered as one. The upper limit of concentration for sustained exposure is now widely accepted as 25 ppm. When the concentration is above 100 ppm, even exposure for a short time, such as for one hour, is dangerous. Lower concentrations such as 50 to 75 ppm may lead to noticeable throat irritation. Control of the concentration is far more important than timing the workers' exposure to an uncertain concentration. This is true despite the fact that laboratory determination of these gases is not easy. In exposure to a constant concentration, the quantity reaching the lungs of any one worker is limited to the volume of tidal air. It is often true that toward the end of a long period of hard work done in the presence of high temperatures, the intake of air, including any contaminant, may be double that for the first hour of the work day, when conditions are more favorable. Although exposure may result in systemic disease, the primary threat is respiratory tract edema, which often is delayed and is unpredictable except when considered in relation to the concentration levels of these gases. As a rule, throat irritation or coughing not readily accounted for should serve as a warning. Overexertion is undesirable during exposure to nitrogen gases and is exceedingly damaging after significant exposure has occurred. Eventually, nitrites may be formed within the body, and their presence may be manifested as low blood pressure, dizziness, headache, and methemoglobinemia. Such manifestations constitute warnings but provide no guide to the possibility of pulmonary tract edema, which may be antecedent. The objective should be to maintain exposure below damaging levels. The workers may evince no signs of overexposure prior to those indicating severe damage.

## TOXICITY OF PAINT SOLVENTS

To the Editor:—*A patient, after working in a factory paint room for three or four days, on four different occasions has had abdominal cramps in the area of the navel and has had vomiting attacks that disappear after 24 hours. His job is to apply a lead-free varnish to tractors. Please discuss this condition.* *R. G. Stoll, M.D., Chickasha, Okla.*

Answer.—The information furnished is inadequate for an exact reply. Some solvents, when inhaled, do provoke gastric disturbances. This is notably true of some chlorinated hydrocarbons, but these compounds are not usually present in common paint coatings. Even naphtha is known to possess this property, but possibly it affects only overly susceptible persons. At times, the disturbance produced simulates an allergic response, since, on occasion, trivial exposure is sufficient to excite immediate response. The combustion products from motor vehicles burning hydrocarbons often cause minor gastric upsets, but, in these cases, aldehydes are more likely to be the cause. The presence of chlorinated hydrocarbons may be detected with an halide lamp. If the test proves strongly positive, their source and type should be determined.

## FUMES FROM THE GALVANIZING PROCESS

To the Editor:—*Would the fumes from a galvanizing process involving zinc and copper cause stippling of the red blood cells in a patient exposed to them?* *M.D., Massachusetts.*

Answer.—Ordinarily, zinc, iron, and copper (if actually present) do not significantly provoke stippling. Up to 1.5% of red blood cells of healthy adults contain demonstrable basophilic substance not regularly in the stipple form. If, in the present instance, stippling is outstanding and is unaccounted for by anemia unrelated to work, suspect lead intoxication, since lead is an ubiquitous impurity in commercial metals and alloys. It may be detected in the workroom atmosphere or in the urine of the patient (in quantities above normal). In addition, the patient should be examined for clinical indications of lead intoxication.

## POSITIVE WASSERMANN FOLLOWING SMALLPOX VACCINATION

To the Editor:—*Can a smallpox vaccination produce a positive Wassermann reaction? The vaccination was given two weeks before the Wassermann test was taken. The reaction to the vaccination was 3+.* *M.D., Texas.*

Answer.—There are ample observations showing that all tests for syphilis, whether complement fixation or precipitation, will in certain vaccinated persons call forth positive serologic reactions. Generally, positivity begins about two weeks following vaccination and lasts for two or three months. An extensive discussion of false positive reactions resulting from smallpox vaccination, as well as from other causes, is presented by Herman Beerman, in "Biologic False Positive Reactions to Tests for Syphilis." (*Am. J. M. Sc.* **209**:525-542 [April] and **210**:524-548 [Oct.] 1945.)

## DIARRHEA FOLLOWING COITUS

To the Editor:—*A healthy young married man develops acute diarrhea the day following coitus. There is mucus in the stool, but no blood, and he may have a normal stool on the same day, prior to the loose one. The condition has been alleviated by antispasmodic therapy and sedation. He has no emotional conflict that I can discover. Results of physical examination are normal. What drug would be most appropriate for this condition?* *Orin Q. Flint, M.D., Delhi, N. Y.*

Answer.—The occurrence of acute diarrhea in a healthy young married man on the day following coitus is not rare. It is dependent on several factors. First, diarrhea of this type is usually psychogenic. Second, since the energy expended may lead to hypoglycemia, diarrhea is most likely to occur before breakfast. Ingestion of food in the evening should prevent this manifestation. The only drugs that are appropriate are those he has already received; any parasympatholytic drug, plus a sedative, such as phenobarbital sodium, is sufficient. It may be wise for this person to consult a psychiatrist, who can determine the existence of an emotional disturbance. Such a disturbance can cause an increase in the peristalsis of the small and large bowel.

## CYSTITIS FOLLOWING INTERCOURSE

To the Editor:—*The query entitled "Cystitis Following Intercourse" in* The Journal (**146**:1546 [Aug. 18] 1951) *was not completely answered by the consultant or by the subsequent correspondence in* The Journal (**147**:1720 [Dec. 22] 1951). *The history was that of a woman in whom cystitis repeatedly developed (controllable with antibiotics) one to three days after intercourse from the beginning of her marriage. To make a diagnosis of cystitis, pyuria was presumably demonstrated; the further successful therapy by antibiotics should completely rule out a psychosomatic diagnosis, or "some disease of the gastrointestinal tract." Previous answers suggested cystoscopic examination, x-ray examinations, intravenous pyelogram, urethroscopy, and panendoscopy, presumably in an effort to locate a chronic source. Certainly, the periurethral glands are a possibility as the site of a chronic infection, which could flare up as a urethritis or cystitis following intercourse but a more likely source of infection has been overlooked—the male partner.*

*The onset of this recurring cystitis was at the beginning of her marriage. Ordinarily a resistance to the organisms causing "honeymoon cystitis" is developed, but this does not always occur especially if the infection is prematurely terminated by antibiotics. The husband's genitals, which carry a large variety of micro-organisms, may serve as a constant source of reinfection to his partner. These organisms may come from any chronic genital infection, such as prostatitis or urethritis, or they may be carried asymptomatically beneath the prepuce. The part played by the male has long been recognized in some types of cervicitis and vaginitis.*

*In correction of the problem presented, I would suggest that: 1. Both husband and wife should be examined, with inspection of the urethra, using sounds if needed to determine the presence of strictures or periurethritis, examination of prostatic fluid, and examination of the vagina and cervix. Any chronic infection found and eliminated will probably terminate the condition. 2. If no chronic infection is found, the husband should be advised to wash his genitals thoroughly with soap and water before each coitus, with emphasis on cleaning beneath the prepuce. 3. Only if the above two steps have proved unrewarding would one feel justified in proceeding to more intensive diagnostic search, such as urethroscopy, cystoscopy, and pyelograms, which should involve the husband as well as the wife.*

*Dr. Victor E. Archer*
*10312 Insley St., Silver Spring, Md.*

## NOSE DROPS

To the Editor:—*In the answer to the question about nose drops in Queries and Minor Notes, Jan. 5, 1952, the consultant left out one of the most important conditions for the use of nasal vasoconstrictors, namely, early closure of the eustachian tube due to upper respiratory infection. Potent vasoconstrictors, such as epinephrine, ephedrine, and phenylephrine (neo-synephrine®), are effective in shrinking the swollen and inflamed mucous membrane of the tympanopharyngeal (eustachian) tube, thus restoring normal patency, ventilation, and drainage.*

*Instead of using the so-called ear drops, which have no effect at all when dropped into the external auditory canal with an intact drum, it is more logical to use nasal vasoconstrictors and thus reach the tympani easily via the natural route. The early judicious use of nasal vasoconstrictors in pre-penicillin days has prevented many a middle ear and mastoid suppuration.*

*Joseph W. Miller, M.D.*
*431 N. E. 30th St.*
*Miami, Fla.*

# JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, JANUARY-APRIL 1952

Titles have been listed or abstracts made of important articles in the following journals in the Current Literature Department of The Journal during the past four months. Any of the journals, except those starred, will be lent by The Journal to individual subscribers in Continental United States and Canada and to members of the American Medical Association and its student organization. No charge is made to members, but the fee for other borrowers is 15 cents in stamps for each periodical. Three journals may be borrowed at a time for a period not exceeding five days. Requests should be addressed to the Library of the American Medical Association. Thus most of these journals are accessible to the general practitioner.

*A. M. A. American Journal of Diseases of Children. Chicago.
*A. M. A. Archives of Dermatology and Syphilology. Chicago
*A. M. A. Archives of Industrial Hygiene and Occupational Medicine. Chicago.
*A. M. A. Archives of Internal Medicine. Chicago.
*A. M. A. Archives of Neurology and Psychiatry. Chicago.
*A. M. A. Archives of Ophthalmology. Chicago.
*A. M. A. Archives of Otolaryngology. Chicago.
*A. M. A. Archives of Pathology. Chicago.
*A. M. A. Archives of Surgery. Chicago.
Acta chirurgica belgica. Brussels.
Acta chirurgica scandinavica. Stockholm.
Acta endocrinologica. Copenhagen.
Acta endocrinologica iberica. Porto.
Acta haematologica. Basel.
Acta medica scandinavica. Stockholm.
Acta obstetricia et gynecologica scandinavica. Stockholm.
Acta tuberculosea belgica. Brussels.
American Heart Journal. St. Louis.
American Journal of Clinical Pathology. Baltimore.
American Journal of Digestive Diseases. Fort Wayne, Ind.
American Journal of Hygiene. Baltimore.
American Journal of the Medical Sciences. Philadelphia.
American Journal of Medicine. New York.
American Journal of Obstetrics and Gynecology. St. Louis.
American Journal of Ophthalmology. Chicago.
American Journal of Orthopsychiatry. New York.
American Journal of Pathology. Ann Arbor, Mich.
American Journal of Physiology. Baltimore.
American Journal of Proctology. New York.
American Journal of Psychiatry. New York.
American Journal of Psychotherapy. New York.
American Journal of Public Health. New York.
American Journal of Roentgenol. and Radium Therapy. Springfield, Ill.
American Journal of Surgery. New York.
American Journal of Syphilis, Gonor. and Venereal Diseases. St. Louis.
American Journal of Tropical Medicine. Baltimore.
American Practitioner and Digest of Treatment. Philadelphia.
American Review of Tuberculosis. New York.
American Surgeon. Atlanta, Ga.
Anesthesiology. New York.
Angiology. Baltimore.
Annales chirurgiae et gynaecologiae Fenniae. Helsinki.
Annales medicinae internae Fenniae. Helsinki.
Annales paediatrici. Basel.
Annals of Allergy. Minneapolis.
Annals of Internal Medicine. Lancaster, Pa.
Annals of Otology, Rhinology and Laryngology. St. Louis.
Annals of the Rheumatic Diseases. London.
Annals of Surgery. Philadelphia.
Annals of Western Medicine and Surgery. Los Angeles.
Antibiotics and Chemotherapy. Washington, D. C.
Archiv für Kinderheilkunde. Stuttgart.
Archiv für klinische Chirurgie. Heidelberg.
Archives of Disease in Childhood. London.
Archives des maladies du coeur et des vaisseaux. Paris.
Archives of Pediatrics. New York.
Archives of Physical Medicine. Chicago.
Archivos uruguayos de medicina, cirugía y especialidades. Montevideo.
Archivum chirurgicum neerlandicum. Arnhem.
Arizona Medicine. Phoenix.
Arquivos brasileiros de cardiologia. São Paulo.
Arquivos de neuro-psiquiatria. São Paulo.
Australian and New Zealand Journal of Surgery. Sydney.
Bacteriological Reviews. Baltimore.
Beiträge zur Klinik der Tuberkulose. Berlin-Heidelberg.
Beiträge zur klinischen Chirurgie. Berlin.
Biochemical Journal. London.
Blood. New York.
Boletín de la Sociedad chilena de obstetricia y ginecologia. Santiago.
Brain. London.
Brasil-médico. Rio de Janeiro.
British Heart Journal. London.
British Journal of Cancer. London.
British Journal of Dermatology. London.
British Journal of Experimental Pathology. London.
British Journal of Industrial Medicine. London.
British Journal of Nutrition. London.
British Journal of Ophthalmology. London.
British Journal of Plastic Surgery. Edinburgh.
British Journal of Radiology. London.
British Journal of Surgery. Bristol.
British Journal of Tuberculosis. London.
British Journal of Urology. London.
British Journal of Venereal Diseases. London.
British Medical Journal. London.
Bruxelles-médical. Brussels.
Bulletin of the Johns Hopkins Hospital. Baltimore.
Bulletin of the New York Academy of Medicine. New York.
Bullettino delle scienze mediche. Bologna.
California Medicine. San Francisco.
Canadian Journal of Medical Sciences. Ottawa.
Canadian Journal of Public Health. Toronto.
Canadian Medical Association Journal. Montreal.
Cancer. Philadelphia.
Cancer Research. Chicago.
Cardiologia. Basel.
Chirurg. Berlin-Heidelberg.
Cincinnati Journal of Medicine. Cincinnati.
Circulation. New York.
Clinica pediatrica. Bologna.
Clínica tisiológica. Rio de Janeiro.
Clinical Science. London.
Connecticut State Medical Journal. Hartford.
Delaware State Medical Journal. Wilmington.
Deutsche medizinische Wochenschrift. Stuttgart.
Deutsche Zeitschrift für Nervenheilkunde. Heidelberg.
Diseases of Chest. Chicago.
Documenta neerlandica et indonesica de morbis tropicis. Amsterdam.
East African Medical Journal. Nairobi.
Edinburgh Medical Journal. Edinburgh.
Electroencephalography and Clinical Neurophysiology. Boston.
Endocrinology. Springfield, Ill.
Eye, Ear, Nose and Throat Monthly. Chicago.
Fortschritte auf dem Gebiete der Röntgenstrahlen vereinigt mit Röntgenpraxis. Stuttgart.
Gastroenterology. Baltimore.
Geburtshilfe und Frauenheilkunde. Stuttgart.
Geriatrics. Minneapolis.
Glasgow Medical Journal. Glasgow.
GP (Journal of American Academy of General Practice). Kansas City, Mo.
Hawaii Medical Journal. Honolulu.
Hoja tisiológica. Montevideo.
Hospital. Rio de Janeiro.
Illinois Medical Journal. Chicago.
Industrial Medicine and Surgery. Chicago.
International Journal of Leprosy. New Orleans.
Irish Journal of Medical Science. Dublin.
Journal of Allergy. St. Louis.
Journal of American Medical Women's Association. Nashville, Tenn.
Journal of Applied Physiology. Washington, D. C.
Journal of Arkansas Medical Society. Fort Smith.
Journal of Aviation Medicine. St. Paul.
Journal of Bacteriology. Baltimore.
Journal of Bone and Joint Surgery. Boston.
Journal of Clinical Endocrinology. Springfield, Ill.
Journal of Clinical Investigation. Cincinnati.
Journal of Clinical Pathology. London.
Journal of Endocrinology. London.
Journal of Experimental Medicine. New York.
Journal of the Florida Medical Association. Jacksonville.
Journal français de médecine et chirurgie thoraciques. Paris.
Journal of Gerontology. St. Louis.
Journal of Hygiene. London.
Journal of Immunology. Baltimore.
Journal of the Indiana State Medical Association. Indianapolis.
Journal of Infectious Diseases. Chicago.
Journal of International College of Surgeons. Chicago.
Journal of Investigative Dermatology. Baltimore.
Journal of the Iowa State Medical Society. Des Moines.
Journal of the Kansas Medical Society. Topeka.
Journal of the Kentucky State Medical Association. Bowling Green.
Journal of Laboratory and Clinical Medicine. St. Louis.
Journal of Laryngology and Otology. London.

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* Cannot be lent.

Journal of the Maine Medical Association. Portland.
Journal of the Medical Association of the State of Alabama. Montgomery.
Journal of the Medical Association of Georgia. Atlanta.
Journal of the Medical Society of New Jersey. Trenton.
Journal de médicine de Lyon. Lyon.
Journal of Mental Science. London.
Journal of the Michigan State Medical Society. Lansing.
Journal of the Missouri State Medical Association. St. Louis.
Journal of Mount Sinai Hospital. New York.
Journal of National Cancer Institute. Washington, D. C.
Journal of National Malaria Society. Columbia, S. C.
Journal of Nervous and Mental Disease. New York.
Journal of Neurology, Neurosurgery and Psychiatry. London.
Jouranl of Neuropathology and Clinical Neurology. Chicago.
Journal of Neuropathology and Experimental Neurology. Baltimore.
Journal of Neurophysiology. Springfield, Ill.
Journal of Neurosurgery. Springfield, Ill.
Journal of Nutrition. Philadelphia.
Journal of the Oklahoma State Medical Association. Oklahoma City.
Journal of Pathology and Bacteriology. Edinburgh.
Journal of Pediatrics. St. Louis.
Journal of Pharmacology and Experimental Therapeutics. Baltimore.
Journal of the Philippine Medical Association. Manila.
Journal of Physiology. London.
Journal of the South Carolina Medical Association. Florence.
Journal of the Student American Medical Association. Chicago.
Journal of the Tennessee State Medical Association. Nashville.
Journal of Thoracic Surgery. St. Louis.
Journal of Tropical Medicine and Hygiene. London.
Journal of Urology. Baltimore.
Journal of Venereal Disease Information. Washington, D. C.
Journal-Lancet. Minneapolis.
Klinische Wochenschrift. Berlin-Heidelberg.
Lancet. London.
Laryngoscope. St. Louis.
Maandschrift voor kindergeneeskunde. Leyden.
Medical Annals of the District of Columbia. Washington.
Medical Journal of Australia. Sydney.
Medicina. Buenos Aires.
Medicina. Mexico, D. F.
Medicina clínica. Barcelona.
Medicine. Baltimore.
Mental Hygiene. Albany, N. Y.
Metabolism. New York.
Military Surgeon. Washington, D. C.
Minerva medica. Turin.
Minerva pediatrica. Turin.
Minnesota Medicine. St. Paul.
Nebraska State Medical Journal. Lincoln.
Nederlandsch tijdschrift voor geneeskunde. Amsterdam.
Neurology. Minneapolis.
New England Journal of Medicine. Boston.
New Orleans Medical and Surgical Journal. New Orleans
New York State Journal of Medicine. New York.
New Zealand Medical Journal. Wellington.
Nordisk medicin. Stockholm.
North Carolina Medical Journal. Winston-Salem.
Northwest Medicine. Seattle.
Ohio State Medical Journal. Columbus.
Pediatrics. Springfield, Ill.
Pennsylvania Medical Journal. Harrisburg.
Physiological Reviews. Baltimore.
Plastic & Reconstructive Surgery. Baltimore.
Policlinico (Med. Sect.). Rome.
Policlinico (Pract. Sect). Rome.
Postgraduate Medicine. Minneapolis.
Practitioner. London.
Prensa médica argentina. Buenos Aires.
Presse médicale. Paris.
Proceedings of Royal Society of Medicine. London.
Proceedings of the Society for Experimental Biology and Medicine. Utica, N. Y.
Proceedings of Staff Meetings of Mayo Clinic. Rochester, Minn.
Progrès médical. Paris.
Psychiatric Quarterly. Utica, N. Y.
Psychiatry. Washington, D. C.
Psychoanalytic Quarterly. Albany, N. Y.
Psychoanalytic Review. Albany, N. Y.
Psychosomatic Medicine. New York.
Public Health Reports. Washington, D. C.
Quarterly Journal of Medicine. Oxford.
Quarterly Journal of Studies on Alcohol. New Haven, Conn.
Radiology. Syracuse, N. Y.
Review of Gastroenterology. New York.
Revista de la Asociación médica argentina. Buenos Aires.
Revista brasileira de cirurgia. Rio de Janeiro.
Revista brasileira de gastroenterologia. Rio de Janeiro.
Revista clínica española. Madrid.
Revista clínica de São Paulo. São Paulo.
Revista médica de Chile. Santiago.
Revista médica de Costa Rica. San José.
Revista de medicina e cirurgia de São Paulo. São Paulo.
Revista de urología. México.
Revue médicale de Liège. Liège.
Revue du rhumatisme et des maladies osteo-articulaires. Paris
Revue de la tuberculose. Paris.
Rhode Island Medical Journal. Providence.
Riforma medica. Naples.
Rivista di patologia e clinica della tubercolosi. Bologna.
Rocky Mountain Medical Journal. Denver.
Sang. Paris.
Scalpel. Brussels.
Schweizerische medizinische Wochenschrift. Basel.
Schweizerische Zeitschrift für Tuberkulose. Basel.
Science. Washington, D. C.
Semaine des hôpitaux de Paris. Paris.
Settimana medica. Florence.
South African Medical Journal. Cape Town.
South Dakota Journal of Medicine and Pharmacy. Sioux Falls
Southern Medical Journal. Birmingham, Ala.
Southwestern Medicine. El Paso, Texas.
Stanford Medical Bulletin. San Francisco.
Strahlentherapie. Munich.
Surgery. St. Louis.
Surgery, Gynecology and Obstetrics. Chicago.
Texas State Journal of Medicine. Fort Worth.
Thorax. London.
Tidsskrift for den norske lægeforening. Oslo.
Tubercle. London.
Ugeskrift for læger. Copenhagen.
United States Armed Forces Medical Journal. Washington, D. C
Urologic and Cutaneous Review. West Palm Beach, Fla.
Virginia Medical Monthly. Richmond.
Western Journal of Surgery, Obstetrics and Gynecology. Portland, Ore
West Virginia Medical Journal. Charleston.
Wiener klinische Wochenschrift. Vienna.
Wiener medizinische Wochenschrift. Vienna.
Wisconsin Medical Journal. Madison.
World Medical Association Bulletin. New York.
Yale Journal of Biology and Medicine. New Haven.
Zeitschrift für Geburtshilfe und Gynäkologie. Stuttgart.
Zeitschrift für die gesamte experimentelle Medizin. Heidelberg.
Zeitschrift für Kinderheilkunde. Heidelberg.
Zeitschrift für klinische Medizin. Heidelberg.
Zentralblatt für Chirurgie. Leipzig.
Zentralblatt für Gynäkologie. Leipzig.

# SUBJECT INDEX

This is an index to all the reading matter in THE JOURNAL. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "BI," Bureau of Investigation; "E," Editorial; "C," Correspondence; "ab," abstracts; the asterisk (*) indicates an original article in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths," "Medicolegal Abstracts" and "Societies" are indexed under these titles at the end of the letters "B," "D," "M," and "S." Matter pertaining to the Association is indexed under "American Medical Association." The name of the author, in brackets, follows the subject entry.

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*Am.—American*
*A.—Association*
*Coll.—College*
*Commn.—Commission*
*Comm.—Committee*
*Conf.—Conference*
*Cong.—Congress*
*Dist.—District*
*Div.—Division*
*Found.—Foundation*
*Hosp.—Hospital*
*Indust.—Industrial*
*Inst.—Institute*
*Internat.—International*
*M.—Medical*
*Med.—Medicine*
*Nat.—National*
*Pharm.—Pharmaceutical*
*Phys.—Physicians*
*Soc.—Society*
*Surg.—Surgery*
*Surgs.—Surgeons*
*S.—Surgical*

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